United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS,

A. C. True, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING NOVEMBER AND DECEMBER, 1903.

Note.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

Alabama College Station, Auburn, J. F. Duggar, Director.

A Leaf-curl Disease of Oaks. By E. M. Wilcox. (Bulletin No. 126, pp. 171–187, pl. 1, figs. 3.)

Includes notes on native oaks useful as shade trees in Alabama, symptoms of leaf curl, fungus causing the disease, and prevention, with a host index and bibliography.

Arkansas Station, Fayetteville, W. G. Vincenheller, Director.

Cowpea Experiments. By C. L. Newman. (Bulletin No. 77, pp. 32.)

Discusses varieties, culture, fertilizing, and uses as a green manure, feed, and catch crop (after wheat).

The Relative Digestibility of Some Edible Fats and Oils. By J. F. Moore. (Bulletin No. 78, pp. 33–41.)

The results of comparative tests on mice and guinea pigs of the digestibility of lard, beef suet, olive oil, cotton-seed oil (crude and refined), corn oil, and peanut oil are reported.

Colorado Station, Fort Collins, L. G. Carpenter, Director.

Irrigation Waters and Their Effects. By W. P. Headden. (Bulletin No. 83, pp. 16.)

The bulletin presents the general conclusions arrived at from a detailed chemical study of the water of mountain streams in Colorado with reference to the fertilizing matter they carry and the changes brought about in the water and the soil by the use of the waters in irrigation.

An Apricot Blight. By W. Paddock. (Bulletin No. 84, pp. 14, pls. 2, figs. 2.)

A description of the disease and notes on its method of attack and on remedies.

Connecticut (State) Station, New Haven, E. H. Jenkins, Director.

Fighting the San José Scale Insect in 1903. By W. E. Britton and B. H. Walden. (Bulletin No. 144, pp. 26, pls. 3.)

The results of spraying experiments at four different places in Connecticut and of experience elsewhere in the State are reported.

Commercial Fertilizers. By E. H. Jenkins et al. (Annual Report, 1903, Part I, pp. 112.)

The results of fertilizer inspection in Connecticut during 1903 are reported in detail, with a discussion of market prices of fertilizing materials.

CONNECTICUT (STORRS) STATION, Storrs, L. A. Clinton, Director.

The Relation of Temperature to the Keeping Property of Milk. By H. W. Conn. (Bulletin No. 26, pp. 16, figs. 2.)

The results of studies of the influence of low temperatures (cooling) on the growth of bacteria in milk and on the keeping quality of milk are reported and discussed.

Poultry as Food. By R. D. Milner. (Bulletin No. 27, pp. 20.)

Analyses of various kinds of poultry meat are reported, with a discussion of the nutritive value, and place in the diet, of poultry.

DELAWARE STATION, Newark, A. T. Neale, Director.

Cover Crops as Green Manure. By C. L. Penny. (Bulletin No. 60, pp. 44, figs. 2.)

A very complete discussion of the chemical and physical value of green manures based upon experiments by the Delaware Station, cooperating with this Department, on various orchard cover crops.

Fourteenth Annual Report, 1902. (Annual Report, 1902, pp. 163, pls. 6, figs. 10.)

The topics treated in this report are dairying as a factor in the profitable utilization of farm lands; studies in plant diseases, including treatment of pear canker or body blight, pear blight notes, a blight of currants, a blight of Japanese chestnuts and of peach stock, and spraying tomatoes for blight; studies of soil bacteriology; report of the chemist, including the growth of crimson clover, sugar-beet experiment, insecticides, and changes in the composition of growing peaches; report of the horticulturist, including nitrate of soda on asparagus, thinning apples, peach thinning experiments, plant nutrition as applied to peaches, pear self-pollination, peach self-pollination, apple pollinations, root forcing on fruit trees, orchard cover crops, and the station orchard; report of the entomologist, including remedies for the codling moth, remedies for apple plant lice, remedies for the San José scale, remedies for the strawberry root louse, the periodical cicada, the harlequin cabbage bug, the white-marked tussock moth, and the fall webworm; and report of the meteorologist.

ILLINOIS STATION, Urbana, E. Davenport, Director.

Present Status of Soil Investigation. By C. G. Hopkins. (Circular No. 72, pp. 21, figs. 6.)

This is the address of the chairman of the section on agricultural chemistry of the Association of American Agricultural Colleges and Experiment Stations at Washington, D. C., November 17, 1903, with some added notes, and calls attention to certain discrepancies in the conclusions drawn by different prominent investigators from studies on soil fertility, especially as they bear upon Illinois soils, and warns against the hasty acceptance of some of these conclusions.

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. 13.)

A brief statement regarding lines of work, publications, and receipts and disbursements.

IOWA STATION, Ames, C. F. Curtiss, Director.

Cherries and Cherry Growing in Iowa. By H. C. Price and E. E. Little. (Bulletin No. 73, pp. 45–98, figs. 30, dgms. 5.)

This bulletin discusses the status of cherry growing in Iowa and general problems of propagation, native stock and top-grafting, varieties adapted to the

region, and methods of culture and protection from insect, fungus, and bird enemies. The bulletin is illustrated with cuts of varieties and diagrams showing blossoming periods of varieties.

KANSAS STATION, Manhattan, J. T. Willard, Director.

Press Bulletins Nos. 71 to 124. (Bulletin No. 119, pp. 86.)

The topics treated are: Experience in soiling and pasturing cows, 1899; fattening steers without hogs; cultivated blue grasses; some interesting climbers for the veranda; the races of corn; sugar beets in Kansas, 1900; honeysuckles at the Kansas Station; Johnson grass; a digestion experiment with buffalo-grass hay; notes on plums; soy beans in Kansas in 1900; disking alfalfa; clovers; tests of soy beans by Kansas farmers in 1900; roots for Kansas farmers; Kafir corn versus good butter; when to cut alfalfa; condimental stock food for dairy cows; shelled corn compared with corn chop for young calves; dried blood as a tonic for young calves; the clover-hay worm; cowpeas as a second crop; baby beef; three ways of feeding milk to calves; skim milk calves in the feed-lot; feeding wheat; inquiries concerning prairie dogs and gophers; feeding farm animals; fall seeding of alfalfa; sorghum pasture for dairy cows; the Hessian fly; maintenance ration for cattle; grain weevils; cattle distemper; sore mouth of cattle; profit in maintaining the milk flow; cerebritis or "staggers" in horses; destroying prairie dogs; destroying pocket gophers; corn improvement; onion notes; pneumonia in cattle; pasture weeds—their prevention and eradication; whole Kafir corn compared with ground Kafir corn for young calves; contagious sore eyes in cattle; glanders and farcy; ergotism; scab or itch in cattle; poison for prairie dogs and pocket gophers; better-bred grain and corn for Kansas; fistulous withers and poll evil; pasture for hogs; a test of hand separators; and late crops. The bulletin is indexed.

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. XXIX+213, 214.)

A brief account of the operations of the station during the year ended June 30, 1903, including statements regarding organization, finances, and work in the various departments of the station, experiments at Fort Hayes Substation, in cooperation with this Department, and in the destruction of gophers and prairie dogs.

KENTUCKY STATION, Lexington, M. A. Scovell, Director.

Seventeen-year Locusts in Kentucky. By H. Garman. (Bulletin No. 107, pp. 83–100, pls. 4, figs. 3.)

This account deals with the history and habits of this insect as occurring in Kentucky, with a discussion of the injury caused by it.

Some Results in Steer Feeding. By D. W. May. (Bulletin No. 108, pp. 103–116, pls. 7.)

Feeding experiments to determine best methods of fattening for market with Shorthorn and Angus grade steers, using blue grass, ear corn, corn-and-cob meal with cotton-seed meal, gluten meal, wheat bran, and distillery grains are reported.

Analyses of Commercial Fertilizers. By M. A. Scovell and H. E. Curtis. (Bulletin No. 109, pp. 119–191.)

The results of analysis of 519 samples of fertilizers inspected during the first half of 1903 are reported.

MARYLAND STATION, College Park, H. J. Patterson, Director.

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. XXXII+200, pls. 2, figs. 17, map 1.)

This includes a brief summary of the work and expenditures of the station during the year in its various departments, and a list of publications of the station. The bulletins issued during the year are bound with the report.

Massachusetts Station, Amherst, H. H. Goodell, Director.

Analyses of Commercial Fertilizers and Manurial Substances. By C. A. Goessmann. (Bulletin No. 92, pp. 36.)

The results of analyses of fertilizers inspected under the State fertilizer law during 1903, and of miscellaneous materials sent to the station for analysis, such as wood ashes, refuse products, etc.

Meteorological Observations. By J. E. Ostrander and F. F. Henshaw. (Meteorological Bulletins Nos. 178, 179, pp. 4 each.)

Summaries of meteorological observations for October and November, 1903.

Michigan Station, Agricultural College, C. D. Smith, Director.

Cheese Problems. By J. Michels. (Special Bulletin No. 21, pp. 10, figs. 2.)

A brief account of experiments on relation of yield of cheese to percentage of fat in milk, paraffining cheese, Cheddar *v.* stirred curd, cheese ripening as affected by temperature and moisture, sage cheese, and gassy milk.

Montana Station, Bozeman, F. B. Linfield, Acting Director.

Sheep Feeding. By F. B. Linfield. (Bulletin No. 47, pp. 32, pl. 1.)

A report on experiments made during the winter of 1902–3 to test the relative economy of various available foods (clover with wheat screenings, wheat, oats, and barley, or a mixture of the last three) for feeding and finishing sheep for market.

Steer Feeding. By F. B. Linfield. (Bulletin No. 48, pp. 153–165, pls. 2.)

The results of tests of the value of various Montana feeding stuffs (clover with wheat, oats, and barley, or a mixture of the last three) for fattening steers for market are reported.

New Jersey Stations, New Brunswick, E. B. Voorhees, Director.

Analyses of Commercial Fertilizers. By J. P. Street, W. P. Allen, and V. J. Carberry. (Bulletin No. 168, pp. 54.)

The results of the inspection of fertilizers in New Jersey during 1903 are reported, with a brief general discussion of the quality of the goods sold in the State and a comparison of the station valuation and the selling price of the fertilizers examined.

New Mexico Station, Mesilla Park, L. Foster, Director.

Shade Trees and Other Ornamentals. By F. Garcia. (Bulletin No. 47, pp. 55, figs. 29.)

Notes on the shade trees and ornamentals suited to New Mexico and on their planting and care.

New York Cornell Station, Ithaca, L. H. Bailey, Director.

Second Report on Cooperative Records of the Cost of Producing Eggs. By H. H. Wing. (Bulletin No. 212, pp. 48.)

This report gives the result of observations on the cost of food for egg production of 3,151 hens, representing 11 flocks, 8 poultry raisers cooperating with the station, and summarizes all of the data of this and the previous series of observations.

Methods of Milking. By H. H. Wing and J. A. Foord. (Bulletin No. 213, pp. 53–66, figs. 5.)

A study of the advantage of careful after-milking, including a comparison of stripping and the Hegelund method of manipulation of the udder.

NORTH CAROLINA STATION, Raleigh, B. W. Kilgore, Director.

The Culture and Marketing of Orchard and Garden Fruits. By W. F. Massey. (Bulletin No. 184, pp. 85–125, figs. 22.)

This bulletin discusses the nature and function of roots, stems, buds, leaves, and flowers of plants, the classification of plants, the propagation of orchard trees and vines; and gives specific directions for the culture and marketing of the pear, peach, plum, cherry, quince, fig, and pomegranate.

Insect and Fungus Enemies of the Peach, Plum, Cherry, Fig, and Persimmon. By F. L. Stevens and F. Sherman, jr. (Bulletin No. 186, pp. 46, figs. 17.)

A detailed and systematic account of the insect and fungus enemies attacking these fruits, with notes on the injuries which they cause and remedies which may be applied.

The Culture of Grapes and Small Fruits. By W. F. Massey. (Bulletin No. 187, pp. 51–74.)

This bulletin discusses varieties and methods of culture of grapes, strawberries, raspberries, blackberries and dewberries, gooseberries, and currants.

The Granville Tobacco Wilt; A Preliminary Bulletin. By F. L. Stevens and W. G. Saekett. (Bulletin No. 188, pp. 79–96, figs. 15.)

The nature and effect of this disease are described and methods of prevention and treatment are discussed.

OHIO STATION, Wooster, C. E. Thorne, Direetor.

Twenty-first Annual Report, 1902. (Annual Report, 1902, pp. XXV.)

An administrative report containing statements of work, expenditures, and publications during the year.

Bulletin No. 135 noted below is incorporated in the report.

Meteorological Summary—Press Bulletins—Index. (Bulletin No. 135, pp. 103–138.)

This bulletin contains a meteorological summary for 1901 by C. A. Patton, the text of the press bulletins issued during the year ended June 30, 1902, and an index of all publications issued during that year.

PORTO RICO STATION, Mayaguez, F. D. Gardner, Special Agent in Charge.

Soil Survey from Arecibo to Ponce, Porto Rico. By C. W. Dorsey, L. Mesmer, and T. A. Caine. (Bulletin No. 3, pp. 53, pls. 4, fig. 1, map 1.)

A reprint from Report of Field Operations of the Bureau of Soils, 1902, giving an account of a survey of a strip of land extending 5 miles on each side of the Government road in process of construction from Arecibo to Ponce.

RHODE ISLAND STATION, Kingston, H. J. Wheeler, Director.

Commercial Feeding Stuffs. By H. J. Wheeler, A. W. Bosworth, and J. W. Kellogg. (Bulletin No. 94, pp. 151–171, figs. 6.)

The results of analyses of 153 samples of commercial feeding stuffs are reported, with special comments on certain of the samples examined and an account of microscopical examinations of the various products.)

Cooperative Experiments in Top-dressing Grass Land. By H. J. Wheeler. (Bulletin No. 95, pp. 19.)

The results of cooperative experiments during 1902 on 11 farms in different parts of Rhode Island are reported and discussed.

A Further Study of the Influence of Lime upon Plant Growth. By H. J. Wheeler and G. E. Adams. (Bulletin No. 96, pp. 23–44, pl. 1.)

This is an account of a continuation of previous experiments extending over a long series of years. The plants with which the experiments here reported were made include Canada peas, Lima beans, asparagus, rhubarb, pumpkins, squashes, poppies, zinnias, pansies, currants, raspberries, blackberries, cranberries, grapes, quinces, and trees of various kinds.

Commercial Fertilizers. H. J. Wheeler et al. (Bulletin No. 97, pp. 47–60.)

This bulletin includes analyses and valuations of a portion of the fertilizers examined during the year under the State fertilizer law, with comments on the quality of the fertilizers sold during 1903 as compared with previous years.

SOUTH DAKOTA STATION, Brookings, J. W. Wilson, Director.

Annual Report, 1903. (Annual Report, 1903, pp. 19.)

This includes a financial statement and brief accounts of the work of the year in the different departments of the station.

VIRGINIA STATION, Blacksburg, J. M. McBryde, Director.

Orchard Studies—XIII. Some Observations on Crown Gall of Apple Trees. By W. B. Alwood. (Bulletin No. 140, pp. 187–212, figs. 11.)

This bulletin records experiments with diseased and healthy seedlings made with a view to determining the sources of crown gall on nursery trees and the best methods of controlling the disease. The bulletin also contains general advice to purchasers with regard to the selection and planting of apple trees.

Some Notes on Canning Fruits and Vegetables. By W. B. Alwood. (Bulletin No. 146, pp. 23–47.)

The general principles of canning are explained and the varieties, methods of handling and canning of tomatoes, snap beans, sugar corn, apples, crab apples, and plums are discussed in detail.

Bush Fruits—Second Report. By H. L. Price. (Bulletin No. 147, pp. 51–78, figs. 9.)

Notes on varieties and culture of raspberries, blackberries, currants, gooseberries, and juneberries.

WASHINGTON STATION, Pullman, E. A. Bryan, Director.

The Formalin Treatment for Wheat and Oat Smut. By R. K. Beattie. (Bulletin No. 54, pp. 8.)

Notes are given on losses from smut in Washington during 1902, on susceptibility of varieties, and on the nature of smut; and the method of applying the formalin treatment is described.

Washington Soils. By E. Fulmer. (Bulletin No. 55, pp. 32.)

Analyses of 25 samples of soil from different parts of eastern Washington and 54 from western Washington are reported, with a general discussion of the chemical characteristics of these soils and their fertilizer requirements.

Spraying for the San José Scale with Modifications of the Sulphur-salt-lime Wash. Chemical Notes on the Sulphur-salt-lime Wash. By C. V. Piper and R. W. Thatcher. (Bulletin No. 56, pp. 31.)

The results of experiments on a private peach orchard with various modifications of the wash, supplemented by laboratory observations and analyses, are reported.

A Home ...getable Garden in the Palouse Country. By S. W. Fletcher. (Bulletin No. 57, pp. 96, figs. 39.)

This is a popular bulletin "written for the farmer, fruit-grower, or homemaker of any business or profession, in that part of southeastern Washington

known as the 'Palouse Country,' who is trying to lessen the expense of his table and add to his enjoyment of life by caring for a little garden patch."

Experiments in Feeding Swine. By. E. E. Elliott. (Bulletin No. 58, pp. 24.)

This is an account of experiments undertaken to determine the comparative feeding value of wheat and barley, singly or combined (whole or chopped), and mixtures of wheat (3 parts), barley (3 parts), and peas (2 parts); and barley (4 parts), wheat (4 parts), oats (3 parts), peas (1 part).

Root Diseases of Fruit and Other Trees Caused by Toadstools. By C. V. Piper and S. W. Fletcher. (Bulletin No. 59, pp. 14, figs. 5.)

Two diseases caused by a fungus growth on the roots, the last stage in the development of which is the production of a cluster of honey-colored mushrooms at the base of the trunk, are described. Notes are given on means of identifying the disease, on injury caused by it in Washington orchards, and on means of prevention or control.

WISCONSIN STATION, Madison, W. A. Henry, Director.

Licensed Commercial Fertilizers and Feeding Stuffs, 1903. By F. W. Woll and G. A. Olson. (Bulletin No. 100, pp. 22.)

This bulletin gives the texts of the State laws providing for the inspection of fertilizers and feeding stuffs, and reports the results of analyses of these materials made under the provisions of these laws during the year. It also includes suggestions regarding the purchase of fertilizers and feeding stuffs.

Approved January 1, 1904.

A. C. TRUE,
Director.

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United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS,

A. C. True, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING JANUARY AND FEBRUARY, 1904.

Note.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

Alabama Canebrake Station, Uniontown, J. M. Richeson, In Charge.

Alfalfa, Sorghum, Soy Beans, and Other Forage Plants. By J. F. Duggar and J. M. Richeson. (Bulletin No. 20, pp. 20.)

An account of results obtained in the culture of alfalfa, soy beans, cowpeas, melilotus, hairy vetch, crimson clover, sorghum, pearl millet, teosinte, German millet, rape, and other forage plants at Uniontown.

Experiments with Cotton and Corn in 1903. By J. F. Duggar and J. M. Richeson. (Bulletin No. 21, pp. 20.)

An account is given of comparative tests of varieties and methods of culture and fertilizing.

Alabama Tuskegee Station, Tuskegee, G. W. Carver, Director.

Cowpeas. By G. W. Carver. (Bulletin No. 5, pp. 10.)

The value of cowpeas as a fertilizer and as human food is discussed. Various methods of preparing the peas for the latter purpose are described.

Arizona Station, Tucson, R. H. Forbes, Director.

Timely Hints for Farmers. (Bulletin No. 47, pp. 297–317, figs. 2.)

A collection of circulars entitled Timely Hints for Farmers (Nos. 42–47), issued by the station from October 20, 1902, to May 1, 1903. The subjects discussed are strawberry culture, skim milk for pigs, watermelon growing, combating the flat-headed borer, the melon plant louse and the "manteca" disease, and the use of branding fluid.

Fourteenth Annual Report, 1903. (Annual Report, 1903, pp. 317–350, figs. 4.)

This contains a brief administrative report and summary accounts of operations and investigations in the different departments of the station.

Arkansas Station, Fayetteville, W. G. Vincenheller, Director.

Peach Growing in Arkansas. By E. Walker. (Bulletin No. 79, pp. 43–68, fig. 1.)

The subject is discussed with reference mainly to the needs of those who are wholly unacquainted with peach growing in this State.

Cowpea Hay. By C. L. Newman. (Bulletin No. 80, pp. 69–82.)

A discussion based upon experiments at the station extending over a number of years on varieties, culture, harvesting, and curing, and the feeding value of cowpea hay.

Fifteenth Annual Report, 1902. (Annual Report, 1902, pp. 148, figs. 40.)

This report contains, besides a financial statement, reprints of bulletins issued during the year.

CALIFORNIA STATION, Berkeley, E. W. Hilgard, Director.

Spraying with Distillates. By W. H. Volck. (Bulletin No. 153, pp. 31, figs. 4.)

Experiments to determine the cause and prevention of spotting resulting from the use as insecticides of distillation products derived from crude petroleum are reported.

Biennial Report, 1901–1903. (Biennial Report, 1901–1903, pp. 222, dgms. 2.)

This includes a financial statement; a summary of bulletins issued during the year; lists of donations to the station, and newspapers and periodicals received; reports on the work in the different departments of the station and at the substations; and articles on the following subjects: Farmers' institutes; soils; alkali and alkali lands; drainage of Fresno district; examinations of waters, foods, feeding stuffs, fruits, etc.; investigations in dairying; distribution of seeds, plants, etc.; and meteorological observations.

CONNECTICUT STATE STATION, New Haven, E. H. Jenkins, Director.

Commercial Feeding Stuffs in the Connecticut Market. By E. H. Jenkins et al. (Bulletin No. 145, pp. 59.)

This bulletin explains the main provisions of the law regulating the sale of concentrated feeding stuffs in Connecticut and the nature and purpose of analysis; discusses analyses of special feeds, including industrial by-products, poultry feeds, proprietary dairy and stock feeds, and condimental feeds, and the digestibility and purchase of feeding stuffs; and gives weights per quart of various feeding stuffs, with tables of analyses of all the commercial feeds examined during 1903.

CONNECTICUT STORRS STATION, Storrs, L. A. Clinton, Director.

Fifteenth Annual Report, 1903. (Annual Report, 1903, pp. 202, figs. 13.)

Besides a financial statement, summary accounts of the operations of the different departments of the station, and a description of the recently equipped dairy bacteriology laboratory, this report contains the following special articles: Thinning fruit, comparison of bacteria in strained and unstrained samples of milk, strained and unstrained milk preserved at 70° and 50° F., aseptic milk, qualitative analysis of bacteria in market milk, bacteria in freshly drawn milk, the nutrition investigations of the Storrs Experiment Station, the conservation of energy in the living organism, the demands of the body for nourishment and dietary standards, the composition of poultry, poultry as food, dehorning cattle, milking records, food cost of raising calves, meteorological observations at Storrs, and general crop review.

FLORIDA STATION, Lake City, T. H. Taliaferro, Director.

Annual Report, 1902. (Annual Report, 1902, pp. 29.)

This report contains a financial statement and brief summaries of the work of the year in the different departments of the station.

GEORGIA STATION, Experiment, R. J. Redding, Director.

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. 12.)

A brief report of the operations of the station during the year, including a statement of receipts and expenditures.

ILLINOIS STATION, Urbana, E. Davenport, Director.

Notes on the Insecticide Use of the Gasoline Blast Lamp. By S. A. Forbes. (Bulletin No. 89, pp. 145–154.)

The experience with this method in different parts of the country is summarized.

Fattening Steers of the Various Market Grades. By H. W. Mumford. (Bulletin No. 90, pp. 155–217, pls. 13.)

Feeding experiments with the following "market classes and grades of cattle as seen at our leading live stock markets" are reported in detail: Feeding cattle—fancy, choice, good, medium, common, inferior; beef or fat cattle—prime, choice, good, medium, common rough.

Preventing Contamination of Milk. By W. J. Fraser. (Bulletin No. 91, pp. 219–249, figs. 11.)

An account is here given of investigations on the sources of contamination of milk and the changes brought about by such contamination; and a discussion of the precautions which dairymen must observe in order to obtain a pure product.

City Milk Supply. By W. J. Fraser. (Bulletin No. 92, pp. 251–272, figs. 9.)

This is a discussion of the importance and means of securing a pure milk supply based upon the results of seven years' experience in conducting a sanitary dairy at the University of Illinois, where the milk is bottled and delivered for direct consumption.

INDIANA STATION, Lafayette, A. Goss, Director.

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. 34.)

This includes summary accounts of the work of the year in the different departments of the station, a financial statement, and lists of bulletins issued and periodicals received.

IOWA STATION, Ames, C. F. Curtiss, Director.

Some Weeds of Iowa. By L. H. Pammel. (Bulletin No. 70, pp. 293–545, figs. 169.)

This bulletin discusses the injurious effect of weeds, their migration, dissemination, etc., and classifies and describes the more important weeds occurring in the State.

Breakfast Foods. By J. B. Weems and C. E. Ellis. (Bulletin No. 74, pp. 101–114.)

Analyses of a large number of samples of these foods are reported, with a discussion of the results and a statement of the claims made for certain of the foods. The foods reported on are classified as (1) prepared foods requiring no preparation for the table; (2) uncooked breakfast foods, which must be prepared before serving; besides certain miscellaneous products. A popular edition of this bulletin has also been issued by the station.

KANSAS STATION, Manhattan, J. T. Willard, Director.

Tests of Forest Trees. By A. Dickens and G. O. Greene. (Bulletin No. 120, pp. 85–131, pls. 12.)

This bulletin gives a record up to date of notes and observations on the growth and success of plantings of forest trees begun at the Kansas Agricultural College as early as 1872.

Treatment and Utilization of Flood-damaged Lands. By A. M. Ten Eyck, H. F. Roberts, and A. Dickens. (Bulletin No. 121, pp. 133–162, pls. 16.)

This is a discussion of the damage done to lands by floods and of the best means of reclaiming washed and sanded lands, with special reference to the planting of sand-binding grasses, trees, and crops best suited to such land.

MAINE STATION, Orono, C. D. Woods, Director.

Plant-house Aleurodes. By L. R. Cary. (Bulletin No. 96, pp. 123–144, figs. 11.)

"This bulletin contains a study on the anatomy, histology, development, and habits of the plant-house aleurodes (*Aleurodes vaporariorum*) and suggested remedies for the pest."

Notes and Experiments Upon the Wheats and Flours of Aroostook County. By C. D. Woods and L. H. Merrill. (Bulletin No. 97, pp. 143–180, figs. 2.)

"This bulletin contains the chemical analyses of Maine wheats and the flours made from them; experiments upon the effects of climate upon wheat, milling experiments with Maine and northwestern grown wheats, with baking tests of the flours; and a comparison of the wheats and flours of Aroostook County with those of the Northwest."

MASSACHUSETTS STATION, Amherst, H. H. Goodell, Director.

Meteorological Observations. By J. E. Ostrander and F. F. Henshaw. (Meteorological Bulletin No. 180, pp. 4.)

This is a meteorological summary for the month of December, 1903, and an annual summary for 1903.

Meteorological Observations. By J. E. Ostrander and F. F. Henshaw. (Meteorological Bulletin No. 181, pp. 4.)

This is a monthly summary of observations for January, 1904.

MICHIGAN STATION, Agricultural College, C. D. Smith, Director.

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. 73–293, figs. 51.)

This includes a financial statement and brief accounts of the work of the year in the different departments of the station, with a summary of meteorological observations for 1902. The bulletins issued by the station during the year are bound with the report.

MISSISSIPPI STATION, Agricultural College, W. L. Hutchinson, Director.

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. 31.)

This contains brief reports by the officers of the station, and on the work at the McNeill Substation.

NEW JERSEY STATIONS, New Brunswick, E. B. Voorhees, Director.

Insecticides and Their Use. By J. B. Smith. (Bulletin No. 169, pp. 27.)

This bulletin gives specific directions regarding the preparation and use of the more important insecticides.

NEW YORK CORNELL STATION, Ithaca, L. H. Bailey, Director.

The Ribbed Cocoon-maker of the Apple. By M. V. Slingerland and Philena B. Fletcher. (Bulletin No. 214, pp. 69–78, pls. 4, figs. 3.)

This is an account of the nature, habits, natural enemies, and treatment of this insect, which is "a tiny caterpillar feeding on the leaves of apple trees and finally spinning conspicuous, little, white cocoons on the bark of the twigs. The insect has rarely done serious injury and is usually a local pest, but it is apparently spreading in increasing numbers through the orchards of New York."

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

Common Diseases and Insects Injurious to Fruits. By S. A. Beach, V. H. Lowe, and F. C. Stewart. (Bulletin No. 170, revised, pp. 381–445.)

"The purpose of this bulletin is to furnish the fruit-grower with a concise account of the common diseases and insects most injurious to cultivated fruits in New York State and to present up-to-date directions for fighting them most efficiently and economically."

Potato Spraying Experiments in 1903. By F. C. Stewart, H. J. Eustace, and F. A. Sirrine. (Bulletin No. 241, pp. 251–292, pls. 12.)

"This bulletin gives the results of the second year's work on the 10-year potato spraying experiments begun in 1902; also, an account of six business experiments conducted by farmers * * * designed to determine the actual profit in spraying potatoes under ordinary farm conditions."

Should Potato Growers Spray? II. By F. H. Hall, F. C. Stewart, H. J. Eustace, and F. A. Sirrine. (Bulletin No. 241, popular ed., pp. 12, figs. 3.)

A brief popular edition of the above.

Twenty-first Annual Report, 1902. (Annual Report, 1902, pp. 473, pls. 49, figs. 2.)

This report contains a detailed financial statement; summaries of the operations of the year in the various departments of the station; a list of periodicals received by the station; and meteorological records for 1902. The bulletins issued during the year are also incorporated in the report.

NORTH CAROLINA STATION, Raleigh, B. W. Kilgore, Director.

Feeding Farm Horses and Mules. By C. W. Burkett. (Bulletin No. 189, pp. 99–127.)

This is an account of experiments extending over parts of two years, which had for their object the determination of the most effective of the feeding stuffs readily obtained in the State and from the farm in keeping the animals in condition and enabling them to perform the work required. The feeding stuffs used, in various combinations, were corn, corn-and-cob meal, wheat bran, wheat, oats, cowpeas, cotton-seed meal, gluten meal, corn silage, cowpea hay, oat hay, clover hay, corn stover, and meadow hay.

North Dakota Station, Agricultural College, J. H. Worst, Director.

Some Stock Poisoning Plants of North Dakota. By L. Van Es and L. R. Waldron. (Bulletin No. 58, pp. 321–354, figs. 7.)

About 10 plants are described as well as the poisonous effects which they produce, and methods of prevention or treatment are described.

Ohio Station, Wooster, C. E. Thorne, Director.

Clover and Alfalfa Seeds. By A. D. Selby and J. F. Hicks. (Bulletin No. 142, pp. 111–130, pls. 4.)

The purity, vitality, and methods of testing these seeds are fully discussed, special attention being given to impurities such as weed seeds, dodder seeds, etc.

Experiments with Sulphur Sprays for the Fall Treatment of the San José Scale. By P. J. Parrott and J. S. Houser. (Bulletin No. 144, pp. 13, figs. 8.)

This bulletin gives directions for the preparation and use of lime-sulphur-salt wash, lime-sulphur-copper sulphate wash, and lime-sulphur-soda wash. Spraying apparatus and appliances are described and their practical operation explained.

Studies in Potato Rosette, II. By A. D. Selby. (Bulletin No. 145, pp. 15–28, figs. 4.)

The nature and prevalence of this disease are explained, methods of prevention are discussed, and its elimination by rotation is described. Attention is also called to the occurrence on tomatoes of a rosette disease very similar to that of potatoes.

Oklahoma Station, Stillwater, J. Fields, Director.

Planting Trees for Posts, Fuel, and Windbreaks. By O. M. Morris. (Bulletin No. 60, pp. 19, figs. 6.)

Methods of planting and caring for trees for these purposes are described and the results of such plantings at the station are briefly summarized.

Field Experiments. By F. C. Burtis and L. A. Moorhouse. (Bulletin No. 61, pp. 22.)

The results of the station experiments with sugar beets, mangel-wurzels, corn, Kafir corn, and oats are summarized, and suggestions are made regarding the culture and use of these crops.

Pennsylvania Station, State College, H. P. Armsby, Director.

Methods of Steer Feeding. By T. I. Mairs and A. K. Risser. (Bulletin No. 64, pp. 8.)

The experiments here reported were comparative tests of the economy of open yard or open shed and stable feeding of steers.

Rhode Island Station, Kingston, H. J. Wheeler, Director.

Commercial Fertilizers. By H. J. Wheeler et al. (Bulletin No. 93, pp. 131–147.)

Analyses and valuations of fertilizers examined during the spring of 1903 are reported.

South Carolina Station, Clemson College, P. H. Mell, Director.

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. 26.)

This report contains a financial statement and brief summary accounts of the work of the year in the different departments of the station.

Tennessee Station, Knoxville, A. M. Soule, Director.

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. 89–104, figs. 2.)

A brief statement of receipts and expenditures and of work during the year in the different departments of the station.

Utah Station, Logan, J. A. Widtsoe, Director.

Experiments in Fattening Lambs. By F. B. Linfield. (Bulletin No. 78, pp. 55, figs. 2.)

This is an account of experiments extending over four years, undertaken to determine how the Utah farmer may profitably dispose of the coarse fodder and grass grown on his farm in the fattening of old ewes and lambs for the market, and also to determine "the best kind and amount of grain and fodder to use, or the combination of feeds that will give the best results; the value of sugar-beet pulp and the waste molasses from the factory, and how to feed them to get the best results; and the best method of feeding and caring for the lambs to get economic returns."

Process Butter—A Dairy Fraud. By R. W. Clark and J. A. Crockett. (Bulletin No. 79, pp. 58–61.)

A warning against a fraudulent churning process in which the yield of butter is abnormally increased by incorporating a large quantity of water and casein.

Poison in Water from a Gold and Silver Mill. By P. A. Yoder. (Bulletin No. 81, pp. 199–202.)

The results of an examination of water from the tail race of a gold and silver mill which was supposed to have poisoned stock are briefly reported.

Feeding Beet Pulp to Steers and Sheep. By R. W. Clark. (Bulletin No. 82, pp. 3.)

Instructions are given for guidance in the use of this material as a feeding stuff, based on feeding experiments during two winters.

Pruning of Tree and Bush Fruits. By W. N. Hutt. (Bulletin No. 83, pp. 33, pls. 12.)

This bulletin gives directions for the pruning of the ordinary orchard and garden fruits, and in order that this may be intelligently done the underlying principles of plant growth are somewhat fully explained.

Virginia Station, Blacksburg, J. M. McBryde, Director.

Orchard Studies—XIV. The Lime-sulphur Wash for the San José Scale. By W. B. Alwood and J. L. Phillips. (Bulletin No. 141, pp. 215–246, figs. 17.)

A discussion of the preparation and use of this insecticide, with notes on experiments with it.

Washington Station, Pullman, E. A. Bryan, Director.

Twelfth Annual Report, 1902. (Annual Report, 1902, pp. 12.)

A brief summary account of the work and expenditures of the station during the year ended June 30, 1902.

West Virginia Station, Morgantown, J. H. Stewart, Director.

Poultry Experiments. By J. H. Stewart and H. Atwood. (Bulletin No. 88, pp. 147–162, pl. 1.)

This bulletin gives the results of experiments with White Leghorn hens in which (1) mash was compared with whole grain and heavy feeding with light feeding as affecting the number of eggs laid and their "hatchability;" (2) beef scrap, ground fresh meat and bone, and milk albumin were compared as regards their influence on the "hatchability" of eggs; and (3) the color of the yolks of eggs as influenced by different foods was studied.

Rural Water Supply. By C. D. Howard. (Bulletin No. 89, pp. 163–213, pls. 5, figs. 2.)

The results of examinations of water from wells, springs, and streams, particularly the Monongahela River, in the vicinity of Morgantown, are reported and discussed with reference to their relation to disease.

Sheep-Feeding Experiments. By J. H. Stewart and H. Atwood. (Bulletin No. 90, pp. 217–230, pls. 3.)

The results of experiments undertaken to determine the most profitable method of winter fattening of lambs are reported, and the nature and treatment of some of the more important parasites of sheep are described.

Fifteenth Annual Report, 1902. (Annual Report, 1902, pp. 35.)

This report contains a financial statement and a summary by the director of the work of the station during the year.

Wisconsin Station, Madison, W. A. Henry, Director.

The Improvement of Home Grounds. By F. Cranefield. (Bulletin No. 105, pp. 39, figs. 32.)

This is a popular discussion of the subject of beautifying home grounds, more especially those in the country. It treats of the desirability of massing shrubs and trees, and the necessity of a well thought-out design in planting about the home. A number of diagrams and figures are given showing proper and improper methods of planting.

Wyoming Station, Laramie, B. C. Buffum, Director.

The Wheat Grasses of Wyoming. By A. Nelson and E. E. Nelson. (Bulletin No. 59, pp. 34, pls. 5, figs. 6.)

"This bulletin is one of a series on the value of different groups of grasses to the farmers in this State and treats of one of the most important and valuable groups." Eleven species are mentioned in the bulletin, of which 8 have been tested. Suggestions are made regarding the irrigation and management of ranches, pastures, and meadows.

Wheat Growing on the Laramie Plains. By B. C. Buffum. (Bulletin No. 60, pp. 39, pls. 7.)

This bulletin gives the results of the station experience in growing wheat on these plains, which are at an elevation of from 7,000 to 8,000 feet above the sea level. The varieties as well as the methods of culture which have proved most successful are described.

Approved March 1, 1904.

A. C. True,
Director.

United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS.

A. C. True, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING MARCH AND APRIL, 1904.

Note.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

Alabama College Station, Auburn, J. F. Duggar, Director.

Alfalfa in Alabama. By J. F. Duggar. (Bulletin No. 127, pp. 47, figs. 2.)

This bulletin "combines the results of experiments made by this station and the experience of a number of farmers who have begun to grow alfalfa in different parts of the State."

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. 24.)

This contains brief reports of the director and other officers of the station.

Arkansas Station, Fayetteville, W. G. Vincenheller, Director.

Fertilizers. By A. M. Muckenfuss. (Bulletin No. 81, pp. 83–96.)

This bulletin gives the results of analyses of fertilizers sold in the State, with some general discussion of the nature and use of fertilizers.

Live-Stock Sanitation in Arkansas. By R. R. Dinwiddie. (Bulletin No. 82, pp. 97–106.)

The subjects briefly treated in this bulletin are: Laws of Arkansas relative to contagious animal diseases; restrictions on the movement of cattle from Arkansas to Missouri, Kansas, Oklahoma, and Indian Territory; and veterinary inspection by the agricultural experiment station.

California Station, Berkeley, E. W. Hilgard, Director.

Directions for Spraying for the Codling Moth. By C. W. Woodworth. (Bulletin No. 155, pp. 20, figs. 4.)

This bulletin was "prepared for the purpose of placing in the hands of growers of apples and pears a concise statement of the recommendations for the control of the codling moth, based on the results of the investigation of this insect conducted the past season in the Pajaro Valley."

Reading Course in Economic Entomology. By C. W. Woodworth. (Circular No. 10, pp. 18.)

Fumigation Practice. By C. W. Woodworth. (Circular No. 11, pp. 27, figs. 23.)

Condensed from Bulletin 122 of the station.

Colorado Station, Fort Collins, L. G. Carpenter, Director.

Cantaloupe Seed. By P. K. Blinn. (Bulletin No. 85, pp. 8, pls. 3.)

The importance of careful seed selection is pointed out and the method to be followed is described.

Crown Gall. By W. Paddock. (Bulletin No. 86, pp. 8, figs. 3.)

A description with suggested treatment for this disease, which causes considerable injury to fruit trees in Colorado.

Connecticut State Station, New Haven, E. H. Jenkins, Director.

Eighth Report on Food Products. By E. H. Jenkins et al. (Annual Report, 1903, pt. 2, pp. 107–198, figs. 26.)

This is a detailed account of the inspection of food products provided for by State law. It includes a large number of analyses of such products bought by the station in different parts of the State or sent to it by the Dairy Commissioner and other individuals for examination. It also includes microscopic studies of the anatomy of the fruits of darnel and chess and certain oil seeds with special reference to their identification.

Third Report of the State Entomologist. By W. E. Britton. (Annual Report, 1903, pt. 3, pp. IV+199–286. pls. 8. figs. 16.)

This report, which is made in conformity with State law, gives a detailed account of organization and equipment, publications, and results of the work of the State entomologist, the latter including examinations of orchards, gardens, nurseries, etc., a general insect review for the year, and summary of results of spraying experiments.

Delaware Station, Newark, A. T. Neale, Director.

Pruning the Peach. By C. P. Close. (Bulletin No. 62, pp. 16, figs. 4.)

The history of peach growing in Delaware is briefly reviewed and specific directions for pruning are given.

Notes on Fungus Diseases in Delaware. By F. D. Chester and C. O. Smith. (Bulletin No. 63, pp. 19–32, figs. 7.)

Notes are given on the nature and treatment of the following diseases: Blight of corn, mildew of Lima bean, bean anthracnose, and watermelon anthracnose. Directions are also given for spraying grapes, the treatment of asparagus rust and plum rot, and for the preparation of rosin soap.

Some Experiences with the Lime, Sulphur, and Salt Washes. Two Common Scale Insects. By C. O. Houghton. (Bulletin No. 64, pp. 35–48. figs. 3.)

Experiments during 1903 in the station orchard at Newark and in a private orchard at Felton, Del., to test the value of these washes, are reported. Notes are also given on the nature, habits, and treatment of the scurfy bark-louse and the oyster-shell bark-louse, two common scale insects in Delaware.

The Bacteriological Analysis of Soils. By F. D. Chester. (Bulletin No. 65, pp. 51–76, figs. 5.)

This is a discussion based upon station investigations of the relations of bacteriological processes to soil fertility and the conditions affecting the development of soil bacteria, with descriptions of the method of making a bacteriological analysis of soils.

Georgia Station, Experiment, R. J. Redding, Director.

The Fig in Georgia. By H. N. Starnes. (Bulletin No. 61, pp. 47–75, pls. 15, figs. 3.)

This bulletin contains a discussion of inflorescence and classification of the fig, its culture, varieties, and leaf types, with a descriptive list of domesticated varieties that have been tested at the Georgia Station. The object of the bulletin is stated to be to give simple cultural directions for the use of those who are unfamiliar with fig culture, to stimulate interest in the culture of the fruit, and to lay a foundation for future improvement in nomenclature.

Corn Culture. By R. J. Redding. (Bulletin No. 62, pp. 81–98.)

This is an account of a continuation of corn experiments which have been carried on at the station for a long series of years. The bulletin deals with weather conditions, variety tests, and methods of culture, fertilizing, and harvesting. General directions for preparing and using fertilizers for corn and other farm crops, based upon experimental work of the station, are given.

Cotton Culture. By R. J. Redding. (Bulletin No. 63, pp. 101–130.)

This is an account of a continuation of cotton experiments which have been carried on at the station for a long series of years. The bulletin deals with weather conditions, variety tests, seed selection, methods of seeding, culture, and fertilizing. General directions for cotton culture, based upon experimental work of the station, are given in an appendix.

IDAHO STATION, Moscow, H. T. French, Director.

Some Experiments with Fungus Diseases in 1903. By L. F. Henderson. (Bulletin No. 39, pp. 257–272.)

This is mainly an account of experiments on the control of fire blight of the pear, apple scab, and powdery mildew of the gooseberry, including tests of the efficiency of the gasoline spraying engine, the value of two sprayings with Bordeaux mixture for the scab, the best methods of applying potassium sulphid for gooseberry mildew, and the efficiency of pruning for fire blight of the pear.

Winter Spraying for the Apple Aphis. By J. M. Aldrich. (Bulletin No. 40, pp. 273–288, fig. 1.)

This bulletin includes a brief summary of the habits of the apple aphis and of the usual methods employed in combating the insect, based upon observations and experiments made by the station.

ILLINOIS STATION, Urbana, E. Davenport, Director.

Soil Treatment for Peaty Swamp Lands, Including Reference to Sand and "Alkali" Soils. By C. G. Hopkins. (Bulletin No. 93, pp. 274–303, figs. 5.)

Experiments at a number of places on the peaty swamp lands which are found in large areas in northern and north-central Illinois, with various methods of treatment to overcome their unproductiveness, are reported.

Nitrogen Bacteria and Legumes. By C. G. Hopkins. (Bulletin No. 94, pp. 306–328, figs. 5.)

The results of observations and experiments on the behavior of the root-tubercle bacteria of red clover, cowpeas, soy beans, alfalfa, and sweet clover on Illinois soils are reported in this bulletin.

Milk Production at the University of Illinois. (Circular No. 73, pp. 16, figs. 11.)

This circular explains the methods employed in the station dairy as illustrating those employed by milk dealers who adopt improved standards.

Directions for the Breeding of Corn. By L. H. Smith. (Circular No. 74, pp. 10.)

A simple and concise statement of "practical methods which can be followed by any grower who desires to improve his corn."

INDIANA STATION, Lafayette, A. Goss, Director.

On the Value of Distillery Dried Grains as a Food for Work Horses. By C. S. Plumb. (Bulletin No. 97, pp. 37–42.)

Experiments with four work horses during the summer and spring of 1900 and 1902, in which dried distillery grains were used as part of the grain ration, are reported.

Three Edible Toadstools. By J. C. Arthur. (Bulletin No. 98, pp. 45–50, pls. 7.)

Three edible toadstools are described and illustrated.

Tests of Small Fruits. By J. Troop. (Bulletin No. 99, pp. 61–68.)

This is a summary of results of tests of strawberries, raspberries, and blackberries carried on at the station during a long series of years.

IOWA STATION, Ames, C. F. Curtiss, Director.

The Feeding Value of Soft Corn for Beef Production. By W. J. Kennedy et al. (Bulletin No. 75, pp. 117–133.)

An account is here given of an experiment extending over six months with 16 steers, divided into two lots of eight each, one of which was fed soft corn, supplemented by gluten feed in the latter part of the experiment and hay for roughage, and the other mature corn with the same supplementary feeds.

The Moisture Content of Butter and Methods of Controlling It. By G. L. McKay and C. Larsen. (Bulletin No. 76, pp. 137–166, figs. 5.)

A general discussion of this subject, with a summary of results obtained in experiments at the Iowa Station.

Selecting and Preparing Seed Corn. By P. G. Holden. (Bulletin No. 77, pp. 169–234, figs. 47.)

A detailed discussion of this subject.

KANSAS STATION, Manhattan, J. T. Willard, Director.

Blackleg and Vaccination. By N. S. Mayo and C. L. Barnes. (Bulletin No. 122, pp. 163–178, figs. 6.)

The symptoms and characteristics of blackleg and methods of vaccination against it are fully described.

KENTUCKY STATION, Lexington, M. A. Scovell, Director.

Nursery Inspection and San José Scale. By H. Garman. (Bulletin No. 110, pp. 195–210, pls. 5, fig. 1.)

Various methods of treating San José scale are described and the results of nursery inspection during 1903 are reported.

The Hessian Fly in 1902–1903. By H. Garman. (Bulletin No. 111, pp. 213–224.)

Observations on the number of annual broods and the habits of the Hessian fly are reported, with results of tests of various methods of treatment, including seeding at different dates and treatment of seed before planting.

Analyses of Commercial Fertilizers. By M. A. Scovell et al. (Bulletin No. 112, pp. 227–264.)

The results of analyses of 683 samples of fertilizers, in compliance with the State fertilizer law, are reported.

Thirteenth Annual Report, 1900. (Annual Report, 1900, pp. XLII+244.)

This includes brief administrative reports of the various officers of the station bound with the bulletins issued during the year.

LOUISIANA STATIONS, Audubon Park, New Orleans, W. C. Stubbs, Director.

Analyses of Commercial Fertilizers and Paris Green. By W. C. Stubbs. (Bulletin No. 76, 2. ser., pp. 266–359.)

Analyses made during the season ended August, 1903, in accordance with

State laws regulating the sale of these products are reported and discussed. The text of the recently amended fertilizer law is given.

MAINE STATION, Orono, C. D. Woods, Director.

Potato Experiments in 1903. Notes on the Angora Goat. The Preservation of Hen Manure. By C. D. Woods and J. M. Bartlett. (Bulletin No. 98, pp. 181–204, figs. 4.)

"This bulletin contains the results of experiments with potatoes in 1903; an account of the station's experience with the Angora goat; and experiments upon preventing losses in stored hen dung."

Finances, Meteorology, Index. By C. D. Woods. (Bulletin No. 99, pp. 205–219+VIII.)

"This bulletin contains the newspaper bulletins published in 1903, the summary of the meteorological observations, the report of the treasurer, and the index for the bulletins issued in 1903. Bulletins 89 to 99 make up the nineteenth annual report of the station."

Fertilizer Inspection. By C. D. Woods and J. M. Bartlett. (Bulletin No. 101, pp. 21–36.)

"This bulletin contains the analyses of manufacturers' samples of brands of fertilizers licensed before March 1, 1904."

MARYLAND STATION, College Park, H. J. Patterson, Director.

Experiments on the Control of San José Scale. By T. B. Symons. (Bulletin No. 90, pp. 24, figs. 4.)

This bulletin gives a general description of the San José scale, its life history and means of distribution, and reports results of experiments with various methods of combatting it.

MASSACHUSETTS STATION, Amherst, H. H. Goodell, Director.

Concentrated Feeds. By J. B. Lindsey et al. (Bulletin No. 93, pp. 51.)

This bulletin contains the text of the Massachusetts feed-stuffs law passed in 1903, with comments; the standard of quality for various feeding stuffs adopted by the station; and the detailed results of inspection of 437 brands of feeding stuffs, with an explanation of the results obtained and suggestions regarding the purchase and mixing of concentrated feeds.

Analyses of Commercial Fertilizers and Manurial Substances. By C. A. Goessmann. (Bulletin No. 95, pp. 18.)

This bulletin contains analyses of fertilizing materials sent to the station for examination, instructions regarding the sampling of fertilizers, notes on barnyard manure, and discussion of trade values of fertilizing ingredients for 1904.

Meteorological Observations. By J. E. Ostrander and F. F. Henshaw. (Meteorological Bulletin No. 182, pp. 4.)

This is a summary of observations for February, 1904.

Meteorological Observations. By J. E. Ostrander and F. F. Henshaw. (Meteorological Bulletin No. 183, pp. 4.)

This is a summary of observations for March, 1904.

MICHIGAN STATION, Agricultural College, C. D. Smith, Director.

A Preliminary Note on the Associative Action of Bacteria in the Souring of Milk and in Other Milk Fermentations. By C. E. Marshall. (Special Bulletin No. 23, pp. 8.)

An account of technical bacteriological investigations.

Insects Injurious to Fruits in Michigan. By R. H. Pettit. (Special Bulletin No. 24, pp. 79, figs. 70.)

"The present bulletin is the first of a series dealing with the insects affecting different classes of crops. The present number deals with the insects affecting tree and bush fruits of Michigan, and those which are sure to be found in Michigan sooner or later."

MINNESOTA STATION, St. Anthony Park, W. M. Liggett, Director.

Injurious Insects of 1903. By F. L. Washburn. (Bulletin No. 84, pp. VIII+184, pl. 1, figs. 119.)

This includes descriptions and discussions of methods of treatment of some 120 insects causing injury to plants in the State during the year.

Wheat and Flour Investigations. By H. Snyder. (Bulletin No. 85, pp. 179–224, figs. 11.)

The topics discussed in this bulletin are glutenous and starchy wheats, composition and bread-making value of the different streams of white flour produced by the roller process of milling, relative protein content of wheat and flour, composition of an ancient Egyptian wheat, influence of storage and bleaching upon flours, and relative food value of graham, entire wheat, and straight-grade flours.

The Food Value of Sugar. The Digestive Action of Milk. By H. Snyder. (Bulletin No. 86, pp. 225–237, figs. 5.)

A brief account of experiments on these subjects.

MISSOURI FRUIT STATION, Mountain Grove, P. Evans, Director.

Commercial Orchards of South Missouri. By F. Horsfall. (Bulletin No. 8, pp. 12, pl. 1.)

A discussion of the extent and general condition of these orchards.

Fruit Buds. By P. Evans. (Bulletin No. 10, pp. 14.)

This bulletin gives the results of observations on the injury to fruit buds by the severe weather of January 26, 1901.

MONTANA STATION, Bozeman, F. B. Linfield, Acting Director.

Contagious Abortion in Montana. By H. C. Gardiner. (Bulletin No. 49, pp. 167–176.)

Discusses different kinds, symptoms, immunity, means of transmission, treatment, so-called remedies, and disinfectants.

Poultry Management. Poultry Diseases. By F. B. Linfield and H. C. Gardiner. (Bulletin No. 50, pp. 179–196, figs. 3.)

This bulletin discusses the construction of poultry houses and appliances, the selection of stock, methods of care and feeding, as well as roup, catarrh, gapes, and lice.

NEBRASKA STATION, Lincoln, E. A. Burnett, Director.

Kherson Oats. By T. L. Lyon. (Bulletin No. 82, pp. 8.)

This bulletin gives a summary of results of tests by farmers in different parts of Nebraska of this variety of oats, which was imported by the Nebraska Station from Russia in 1897.

Cooperative Variety Tests of Corn in 1902 and 1903. By T. L. Lyon. (Bulletin No. 83, pp. 20, fig. 1.)

This is an account of cooperative tests undertaken to determine the types of corn best adapted to different sections or localities in Nebraska.

NEVADA STATION, Reno, J. E. Stubbs, Director.

Annual Report, 1903. (Annual Report, 1903, pp. 27.)

Contains brief reports by the director, treasurer, and heads of the different departments of the station.

NEW HAMPSHIRE STATION, Durham, W. D. Gibbs, Director.

Fruit Growing, With a Selected List of Varieties for New Hampshire. By F. W. Rane. (Bulletin No. 105, pp. 24, figs. 21.)

A discussion of conditions essential to success in fruit culture and of the best varieties of orchard and small fruits to plant.

Forestry. By F. W. Rane. (Bulletin No. 106, pp. 27–43, figs. 9.)

This contains general instructions regarding forest planting, with special reference to the utilization of waste lands for this purpose.

The Brown-tail Moth in New Hampshire. By C. M. Weed. (Bulletin No. 107, pp. 47–60, figs. 10.)

This bulletin deals with the life history, habits, distribution, and treatment of this insect in the State.

NEW JERSEY STATIONS, New Brunswick, E. B. Voorhees, Director.

Experiments in Crossing Sweet Corn. By B. D. Halsted and J. A. Kelsey. (Bulletin No. 170, pp. 22, pls. 4.)

This bulletin contains historical notes on corn; a brief discussion of the botany, races, and varieties of corn; and an account of experiments in crossing sweet corn begun at the New Jersey Station in 1898. A new variety known as Voorhees Sweet Corn, originated in these experiments, is described.

The Common Mosquitoes of New Jersey. By J. B. Smith. (Bulletin No. 171, pp. 40, pls. 13, figs. 4.)

A monograph discussing the nature, habits, and methods of control of the more common species of mosquitoes.

NEW MEXICO STATION, Mesilla Park, L. Foster, Director.

Soil Moisture Investigations for the Season of 1903. By J. D. Tinsley and J. J. Vernon. (Bulletin No. 48, pp. 15.)

Experiments to determine the effect of applications of different amounts of irrigation water on the growth of wheat and on the amount and movement of soil moisture are reported.

Canaigre. By R. F. Hare. (Bulletin No. 49, pp. 15.)

The canaigre plant is described and its propagation, cultivation, and value as a tanning material are discussed with reference to its profitable production in New Mexico.

NEW YORK CORNELL STATION, Ithaca, L. H. Bailey, Director.

The Grape Leaf Hopper. By M. V. Slingerland. (Bulletin No. 215, pp. 83–102, figs. 22.)

This bulletin gives the results of a detailed study of this insect with an account of experiments made by the station in Chautauqua County to discover means of controlling it.

Spraying Experiments. By J. L. Stone and J. Craig. (Bulletin No. 216, pp. 105–122, figs. 2.)

This bulletin includes reports on the killing of wild mustard by means of copper-sulphate spray, and the use of dry or dust sprays in orchards, with a schedule of cooperative demonstrations and experiments to be carried out during the present year.

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. L+452, pls. 11, figs. 105, dgms. 2.)

This contains brief reports by the treasurer and other officers of the station. The bulletins issued during the period covered by the report are bound with it.

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

Ash and Grit for Growing Chicks. By F. H. Hall and W. P. Wheeler. (Bulletin No. 242, popular ed., pp. 7.)

A popular edition of Bulletin 242 of the station.

Spray Mixtures and Spray Machinery. By S. A. Beach, V. A. Clark, and O. M. Taylor. (Bulletin No. 243, pp. 315–373+III, pls. 15.)

A very complete compilation of information on this subject based largely upon station experiments and observations.

Chemical Changes in the Souring of Milk and Their Relations to Cottage Cheese. By L. L. Van Slyke and E. B. Hart. (Bulletin No. 245, pp. 36.)

"The purpose of the work discussed in this bulletin was to learn the amounts of casein monolactate and casein dilactate that are formed in the ordinary souring of milk, and to consider the results in some of their practical applications to the manufacture, ripening and digestibility of cottage or Dutch cheese."

An Experiment in Shading Strawberries. By O. M. Taylor and V. A. Clark. (Bulletin No. 246, pp. 37–58, figs. 4.)

The results of experiments with different kinds of shade carried out in three different localities during two seasons are reported, with a general discussion of the effect and applicability of shading as a cultural method.

The Lime-sulphur-soda Wash for Orchard Treatment. By P. J. Parrott, S. A. Beach, and H. O. Woodworth. (Bulletin No. 247, pp. 61–81, pls. 4.)

"This bulletin gives the results of the first year's experiments to determine to what extent the lime-sulphur-caustic-soda wash may be used in place of the Bordeaux-arsenical mixtures for orchard treatment, and the value of this wash for the control of the San José scale."

Sulphur Sprays for Orchard Trees. By F. H. Hall et al. (Bulletin No. 247, popular ed., pp. 11, figs. 2.)

A popular edition of Bulletin 247 of the station.

A Swelling of Canned Peas Accompanied by a Malodorous Decomposition. By H. A. Harding and J. F. Nicholson. (Bulletin No. 249, pp. 153–168.)

This bulletin discusses the extent of the canning industry in New York and reports an investigation of the causes of swelling as well as means of prevention.

Director's Report for 1903. By W. H. Jordan. (Bulletin No. 244, pp. 377–398.)

This report briefly sets forth the present status of the station, its operations during 1903, and its more pressing future needs.

NORTH DAKOTA STATION, Agricultural College, J. H. Worst, Director.

Trees and Fruit in North Dakota. By C. B. Waldron. (Bulletin No. 59, pp. 357–385, figs. 7.)

Varieties of fruit and forest trees suited to North Dakota are described, with notes on methods of planting and cultivation.

Analyses of Formaldehyde Sold in North Dakota. By E. F. Ladd. (Bulletin No. 60, pp. 389–395.)

Analyses are reported which show that the formaldehyde sold in the State is often of inferior quality, and the advisability of enacting a law regulating the sale of this product is discussed.

OHIO STATION, Wooster, C. E. Thorne, Director.

Twenty-second Annual Report, 1903. (Annual Report, 1903, pp. XVIII.)

An administrative report containing statements of work, expenditures, and publications during the year.

Bulletin No. 143 noted below is incorporated in the report.

Meteorological Summary, Press Bulletins, Index. (Bulletin No. 143, pp. 131–156.)

This bulletin contains a meteorological summary for 1902 by C. A. Patton, the text of the press bulletins issued during the year ended June 30, 1903, and an index of all publications issued during that year.

The Hardy Catalpa as a Farm Crop. By W. J. Green. (Bulletin No. 149, pp. 69–80, pls. 8.)

A discussion of this subject based largely upon compiled data, with notes on methods of culture.

PENNSYLVANIA STATION, State College, H. P. Armsby, Director.

Forage and Soiling Experiments, 1902. By G. C. Watson and T. I. Mairs. (Bulletin No. 65, pp. 12.)

The results obtained during the year with the following crops are briefly reported: Clover and timothy, flat peas, Canada field peas and oats sown together, rape, soy beans, sorghum, sorghum and cowpeas sown together, cowpeas, and field corn.

Spraying Grapes for Black Rot in Erie County, Pennsylvania. By G. C. Butz. (Bulletin No. 66, pp. 16, pls. 2, fig. 1.)

RHODE ISLAND STATION, Kingston, H. J. Wheeler, Director.

Analyses of Feeding Stuffs. By H. J. Wheeler et al. (Bulletin No. 98, pp. 63–78.)

This bulletin reports and discusses analyses of various commercial feeding stuffs inspected in compliance with the State law. It also includes a list of the publications of the Rhode Island Station available for distribution January 1, 1904.

SOUTH DAKOTA STATION, Brookings, J. W. Wilson, Director.

Macaroni Wheat: Its Milling and Chemical Characteristics. By J. H. Shepard. (Bulletin No. 82, pp. 45, figs. 6.)

A detailed account of investigations begun in cooperation with the Bureau of Plant Industry of this Department in 1900, including results of studies of milling characteristics, chemical properties, manufacture of macaroni, preparation of macaroni for the table, and the character of bread made from macaroni flour.

TENNESSEE STATION, Knoxville, A. M. Soule, Director.

Crops for the Silo. By A. M. Soule and J. R. Fain. (Bulletin Vol. XVII, No. 1, pp. 24, figs. 9.)

This bulletin discusses the desirability of more extended use of silage; the selection and cultivation of silage crops suited to Tennessee; the preparation and feeding value of silage made from different crops.

Increasing the Yield of Corn. By A. M. Soule and P. O. Vanatter. (Bulletin Vol. XVII, No. 2, pp. 27–48, figs. 11.)

This is a discussion based upon experiments at the Tennessee Station of the

possibility of increasing the yield of corn by careful selection of seed, the choice of varieties suited to soil and climatic conditions, and by proper cultivation and fertilizing.

VERMONT STATION, Burlington, J. L. Hills, Director.

The Measurement of Saw Logs. By A. L. Daniels. Bulletin No. 102, pp. 35–40, dgms. 2.)

A method of determining, in advance of its sawing, the actual number of board feet in an average log is described.

The Maple Sap Flow. By C. H. Jones, A. W. Edson, and W. J. Morse. (Bulletin No. 103, pp. 43–184, pls. 16, figs. 6.)

This bulletin discusses the importance of the maple sugar industry, the methods commonly followed, the general structure and physiology of the maple tree, and reports in detail investigations in a number of sugar orchards of problems of sap pressure and flow as affected by various conditions.

Commercial Feeding Stuffs. By J. L. Hills, C. H. Jones, and F. M. Hollister. (Bulletin No. 104, pp. 187–192.)

This is a brief report of results of inspection under State law during 1903 of samples of cotton-seed meal, linseed meal, gluten meal and feed, dried distillers' grains, oat feed, provender, wheat offals, and condimental feeds for various kinds of farm stock.

The Maple Sap Flow. By J. L. Hills. (Bulletin No. 105, pp. 195–222, figs. 3.)

A popular edition of Bulletin No. 103.

Abstract of Sixteenth Annual Report, 1902–3. By J. L. Hills. (Bulletin No. 106, pp. 227–272, figs. 2.)

Commercial Fertilizers. By J. L. Hills, C. H. Jones, and F. M. Hollister. (Bulletin No. 107, pp. 275–296.)

This contains the text of the fertilizer law, a schedule of valuation, analyses of fertilizers inspected in accordance with the law, and average of fertilizers examined during five years by the station.

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. 139–292 +XXXIV, pls. 4, figs. 8.)

VIRGINIA STATION, Blacksburg, J. M. McBryde, Director.

Orchard Studies—XV. The Bitter Rot of Apples. By W. B. Alwood. (Bulletin No. 142, pp. 251–279, pls. 4.)

This is substantially a reprint of a former bulletin on this subject, with the addition of more recent data.

WASHINGTON STATION, Pullman, E. A. Bryan, Director.

A Report on the Range Conditions of Central Washington. By J. S. Cotton. (Bulletin No. 60, pp. 45, figs. 18.)

This is an account of investigations begun in 1901 in cooperation with the Bureau of Plant Industry of this Department, and deals with physical features, forage supply, methods of handling range stock, suggestions regarding range improvement, and brief descriptions of range plants.

WEST VIRGINIA STATION, Morgantown, J. H. Stewart, Director.

Commercial Fertilizers. By J. H. Stewart and B. H. Hite. (Bulletin No. 91, pp. 53.)

This is an account of fertilizer inspection under State law during the first half of 1903.

WISCONSIN STATION, Madison, W. A. Henry, Director.

Licensed Commercial Feeding Stuffs, 1903. By F. W. Woll and G. A. Olson. (Bulletin No. 106, pp. 55.)

Analyses of various commercial feeding stuffs examined during the year under the provisions of the State law are reported and discussed.

Official Tests of Dairy Cows, 1902–3. By F. W. Woll. (Bulletin No. 107, pp. 43, figs. 21.)

The results of tests with reference to milk and butter production of 171 cows of different herds and breeds are reported and discussed.

Trees and Shrubs for Shade and Ornament. By F. Cranefield. (Bulletin No. 108, pp. 60, figs. 47.)

This bulletin discusses the selection of trees and shrubs for shade and ornamental planting.

Concentrated Feeding Stuffs and Fertilizers Licensed for Sale in Wisconsin, 1904. By F. W. Woll. (Bulletin No. 109, pp. 10.)

A list of licensed materials with guarantees. The texts of the feeding-stuff and fertilizer laws are included.

Spraying Fruit Trees. By E. P. Sandsten. (Bulletin No. 110, pp. 28, figs. 12.)

A general discussion of the preparation and use of insecticides and fungicides for fruit trees, with notes on the common insects and fungus diseases infesting orchards.

Grain Smut and Its Prevention. By R. A. Moore. (Bulletin No. 111, pp. 10, figs. 2.)

This bulletin explains the prevalence of oat smut and the damage caused by it in the State, emphasizes the importance of keeping the oat crop free from the disease, and describes the method of formaldehyde treatment which has been successfully tested by the station.

Alfalfa in Wisconsin. By R. A. Moore. (Bulletin No. 112, pp. 10, figs. 4.)

This is a summary of the experience of the station during four seasons in growing alfalfa. Alfalfa is recommended as a green-forage and hay-producing plant for Wisconsin, and the best methods of culture are described.

Approved May 1, 1904.

A. C. TRUE,
Director.

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United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS.

A. C. True, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING MAY AND JUNE, 1904.

Note.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

California Station, Berkeley, E. W. Hilgard, Director.

Fowl Cholera. By A. R. Ward. (Bulletin No. 156, pp. 20.)

This is an account of work done under an appropriation made by the State legislature of California for the purpose of establishing and maintaining a poultry experiment station at Sonoma under the supervision of the director of the State station at Berkeley. It includes brief references to previous investigations on fowl cholera and a history of the disease in California, with a discussion of means of dissemination, symptoms, biological characteristics of the germ of the disease, and methods and results of prevention. The bulletin also contains a list of references to articles on the subject of fowl cholera.

Connecticut State Station, New Haven, E. H. Jenkins, Director.

Report of the Station Botanist. By G. P. Clinton. (Annual Report, 1903, pt. 4, pp. 277–370, pls. 21.)

This is a summary of all available information regarding diseases affecting cultivated plants in Connecticut. It discusses the occurrence, characteristics, and treatment of each disease, including not only fungus diseases, but mechanical injuries, insect injuries, and physiological troubles.

Feeding Stuffs, Fertilizing Orchards, Seed Tests, Tobacco Work, Index. By E. H. Jenkins. (Annual Report, 1903, pt. 5, pp. 371–480+XIV.)

This, the concluding part of the report of the station for 1903, includes the results of the inspection of feeding stuffs, with a summary of the feeding-stuff law, explanations of analyses, and notes on digestibility and on the purchase of feeding stuffs; observations on the fertilization of peach orchards; tests of the vitality of vegetable seeds; tobacco work in 1903, and an index, table of contents, etc., for the report of the station for the year.

Connecticut Storrs Station, Storrs, L. A. Clinton, Director.

Dairy Observations. By C. L. Beach. (Bulletin No. 28, pp. 20, figs. 7.)

This bulletin gives the results of station observations on the effect of dehorning on milk production, tests of different methods of milking, and the food cost of raising calves.

Records of a Dairy Herd for Five Years. By C. L. Beach. (Bulletin No. 29, pp. 32, figs. 18.)

The records of the amounts of milk and fat produced, and food consumed, for each cow in the college herd are summarized in this bulletin, and the net profits for each animal are estimated.

Spraying Notes for 1903. By E. R. Bennett. (Bulletin No. 30, pp. 23, figs. 7.)

The results of experiments in spraying with lime-sulphur-salt mixtures in an orchard of 11,000 peach and plum trees for San José scale are reported, as well as experiments with Bordeaux mixture for melon blight. Methods of preparing the mixtures are described.

FLORIDA STATION, Lake City, T. H. Taliaferro, Director.

Cultivation of Citrus Groves. By H. H. Hume. (Bulletin No. 69, pp. 28, pl. 1.)

A general discussion of this subject with especial reference to the adaptation of the method of culture to the character of the soil.

IDAHO STATION, Moscow, H. T. French, Director.

Grasshopper and Cricket Outbreaks. By J. M. Aldrich. (Bulletin No. 41, pp. 291–304, figs. 3.)

In this bulletin the principal grasshopper outbreaks occurring in Idaho during the last 20 years are discussed, as well as the methods of prevention and treatment which have been found useful, the object being to "enable the farmer to understand the nature of his problem, the prospects of relief by natural causes, and the remedies best adapted to his circumstances."

Annual Report, 1903. (Annual Report, 1903, pp. 34.)

A brief summary of operations in the different departments of the station during the year ended June 30, 1903, including also a meteorological summary and soil temperatures for each month of the year 1902.

IOWA STATION, Ames, C. F. Curtiss, Director.

Drainage Conditions in Iowa. Notes and Tables on Drainage Engineering. By W. H. Stevenson, G. I. Christie, and L. E. Ashbaugh. (Bulletin No. 78, pp. 237–263, figs. 4.)

This bulletin contains a discussion of the need and advantages of drainage in Iowa, based on results of an extended investigation of drainage conditions in the State, and notes and tables showing the grades and sizes of drains to be used under different conditions, the cost of tile drains, and forms of contracts and specifications for drainage. The order of procedure to secure drainage with proper outlet, etc., under the new State drainage law, is also given.

KANSAS STATION, Manhattan, J. T. Willard, Director.

Crop Experiments in 1903. By A. M. Ten Eyck and V. M. Shoesmith. (Bulletin No. 123, pp. 181–249, pls. 10.)

Accounts are given of experiments, mainly tests of varieties, with spring wheat, barley, oats, emmer, flax, millet, soy beans, cowpeas, sorghum, broom corn, corn, and miscellaneous forage and silage crops.

LOUISIANA STATIONS, Audubon Park, New Orleans, W. C. Stubbs, Director.

Comparative Results of Seedling Sugar Canes, D. 74 and D. 95, with Our Home Sugar Canes (Louisiana Striped and Louisiana Purple). By W. C. Stubbs and R. E. Blouin. (Bulletin No. 78, 2. ser., pp. 46.)

This bulletin gives a summary of results obtained during the last ten years at the experiment station and by sugar planters in comparative tests of the imported seedling canes Demerara 74 and 95 and domestic varieties.

Results of Experiments with Nodule Disease of the Intestines of Sheep. By W. H. Dalrymple. (Bulletin No. 79, 2. ser., pp. 16. figs. 2.)

This is an account of experiments which have extended over several years

and which suggests "a method by which both sheep and pastures may be relieved of this great obstacle to successful sheep raising in the South."

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. 24.)

A brief summary of the work of the stations during the year ended June 30, 1903.

MAINE STATION, Orono, C. D. Woods, Director.

Poultry Management. By G. M. Gowell. (Bulletin No. 100, pp. 20, pls. 6.)

"This bulletin contains an account of the methods of poultry management in use at this station, including methods of incubation, treatment, and housing of young chicks, a description of the warmed and curtained front houses, the trap nests, and methods of feeding laying hens."

Feeding-Stuff Inspection. By C. D. Woods and J. M. Bartlett. (Bulletin No. 102, pp. 37–60.)

"This bulletin contains the analyses of samples of feeding stuffs received from correspondents and collected by the inspectors in the fall and winter 1903–4, and a discussion of the results of the inspection."

Entire-Wheat Flour. By C. D. Woods and L. H. Merrill. (Bulletin No. 103, pp. 61–80, pl. 1, fig. 1.)

"This bulletin contains the results of studies upon the milling, the chemical composition, the digestibility, and the nutritive value of so-called entire-wheat flour by itself and compared with ordinary bread and graham flours."

Nineteenth Annual Report, 1903. (Annual Report, 1903, pp. VIII + 219, figs. 59.)

This report contains a brief statement regarding the organization and purposes of the station and the text of Bulletins 89–99 with an index.

MARYLAND STATION, College Park, H. J. Patterson, Director.

Experiments with Nitrogenous Fertilizers. By H. J. Patterson. (Bulletin No. 91, pp. 25–53.)

This bulletin discusses the sources of nitrogen available to farmers, briefly reviews the history of the use of nitrogenous fertilizers, and reports plat experiments begun in 1897 "to study some of the underlying principles connected with the use of nitrogenous fertilizers of different kinds and to compare the principal sources of nitrogen which are commonly found on the market."

Notes on Apple Culture. By C. F. Austin. (Bulletin No. 92, pp. 55–94, figs. 36.)

The purpose of this bulletin is "to call attention in a brief way to some of the principles and methods that are considered by successful orchardists as absolutely essential to successful apple growing." The recommendations made are applicable especially to Maryland conditions.

Second Report on the Cause of Pithiness in Celery. By C. F. Austin and T. H. White. (Bulletin No. 93, pp. 95–101.)

This is an account of a continuation of work reported in Bulletin No. 83 of the station.

MASSACHUSETTS STATION, Amherst, H. H. Goodell, Director.

Distillery and Brewery By-Products. By J. B. Lindsey et al. (Bulletin No. 94, pp. 28.)

The composition, digestibility, and general food value of distillers' dried grains, brewers' dried grains, and malt sprouts are discussed, and the results of feeding experiments with these products are summarized.

Fungicides, Insecticides, and Spraying Calendar. By G. E. Stone, H. T. Fernald, and F. A. Waugh. (Bulletin No. 96, pp. 16, fig. 1.)

"This bulletin contains a compilation of formulas for fungicides and insecticides taken from various sources, and the usual spraying calendar."

The Dairy Law and Its Results. By J. B. Lindsey. (Special Bulletin, July, 1903, pp. 14.)

The text of the State law passed in 1901 is given, and the work done under its provisions in the inspection of glassware and Babcock machines and in training men to successfully operate the Babcock test is summarized. The bulletin also contains detailed directions for the operation of the Babcock test and a list of creameries and milk depots in Massachusetts.

Meteorological Observations. By J. E. Ostrander and F. F. Henshaw. (Meteorological Bulletin No. 184, pp. 4.)

This is a summary of observations for April, 1904.

Meteorological Observations. By J. E. Ostrander and F. F. Henshaw. (Meteorological Bulletin No. 185, pp. 4.)

This is a summary of observations for May, 1904.

Michigan Station, Agricultural College, C. D. Smith, Director.

Breakfast Foods. By F. W. Robison. (Bulletin No. 211, pp. 25.)

This bulletin includes a short popular discussion of food nutrients and laws of nutrition, technical analytical data with deductions therefrom relating to such cereal breakfast foods as were obtainable in the Michigan markets, and a description of some of the methods of analysis employed.

Seed Testing for Farmers. By B. O. Longyear. (Bulletin No. 212, pp. 11, figs. 6.)

This bulletin gives short, simple directions for examining and testing farm seeds, with descriptions and figures of a few of the commonest and worst weed seeds found in such seed.

The Crop of Corn. By J. A. Jeffery. (Special Bulletin No. 22, pp. 15, figs. 2.)

"This bulletin has been prepared for use in home and social study of the great American crop—corn. No attempt has been made to present the subject in an exhaustive manner or to enter into the . . . theory of corn production." Such facts are presented as give a broad understanding of the size of the crop and its great and increasing usefulness and emphasize some of the important points in growing corn.

Fungus Diseases of Fruits in Michigan. By B. O. Longyear. (Special Bulletin No. 25, pp. 68, figs. 42.)

"This bulletin is intended to serve as a sort of text-book of the diseases most common and destructive to fruits in Michigan." It treats of their distribution, characteristics, and treatment.

Missouri Station, Columbia, H. J. Waters, Director.

Commercial Fertilizers. By P. Schweitzer. (Bulletin No. 63, pp. 22.)

A report on the registration and inspection of fertilizers in Missouri during the year ended December 31, 1903, including the text of the State fertilizer law approved March 14, 1903, the details of analyses, and advice to farmers regarding the purchase and use of fertilizers.

Annual Report, 1903. (Annual Report, 1903, pp. 31.)

This report contains lists of the subjects under investigation during the year and publications issued, a financial statement, and the following special articles: Investigation of the bodies called fiber and carbohydrates in feeding stuffs, with a tentative determination of the components of each; adulterated linseed oil for veterinary purposes; and investigation of canned food products by P. Schweitzer.

Missouri Fruit Station, Mountain Grove, P. Evans, Director.

Orchard Enemies. By F. Horsfall. (Bulletin No. 9, pp. 31, figs. 17.)

The common insect enemies of orchards are described, with suggestions as to methods of treating them.

Montana Station, Bozeman, F. B. Linfield, Acting Director.

First Annual Report of the State Entomologist of Montana. By R. A. Cooley. (Bulletin No. 51, pp. 199–274, pls. 9, figs. 10.)

This report "contains an account of a few of the most important insect pests of Montana, and in addition, a fairly complete, though condensed, manual of insect pests. This manual is intended to put in easily accessible form the most important information regarding a large number of insects now in the State or liable to be introduced."

Nebraska Station, Lincoln, E. A. Burnett, Director.

Pasture, Meadow, and Forage Crops. By T. L. Lyon and A. S. Hitchcock. (Bulletin No. 84, pp. 66, figs. 6.)

This is a report on cooperative experiments of several years' duration, with the U. S. Department of Agriculture, including a general discussion of the classification and methods of utilizing forage plants, and a detailed report of results of experiments at the station with grasses and forage plants classified with reference to those which have given successful results or are worthy of further trial, those of less importance for cultivation, and those especially adapted to pastures and meadows.

Nevada Station, Reno, J. E. Stubbs, Director.

Summer Ranges of Eastern Nevada Sheep. By P. B. Kennedy. (Bulletin No. 55, pp. 56, pls. 31.)

A report of a detailed study of the conditions, character of plants, effects of grazing, and amount and kinds of valuable forage for sheep on the summer range in a typical area in the northern portion of Elko County.

The Western Cricket. By S. B. Doten. (Bulletin No. 56, pp. 18, pl. 1.)

An account of the habits and natural history of this insect with a description of the most promising means of holding it in check.

Grasshoppers in Alfalfa Fields. By S. B. Doten. (Bulletin No. 57, pp. 8, pls. 2.)

A description is given of methods of controlling or killing these insects, which are said to be the most destructive found in Nevada.

New Hampshire Station, Durham, W. D. Gibbs, Director.

Insect Record for 1902. By C. M. Weed. (Bulletin No. 102, pp. 71–78, figs. 3.)

Notes on various injurious insects observed in New Hampshire during the year.

Standard Milk. By F. W. Morse. (Bulletin No. 103, pp. 79–82.)

A brief explanation of the basis for the legal standard for milk in New Hampshire and Massachusetts, with suggestions as to the best means of producing milk of standard quality.

Fifteenth Annual Report, 1903. (Bulletin No. 104, pp. 85–98+IV, fig. 1.)

Brief summaries are given of the work in the different departments of the station during the year. The station greenhouses constructed during the year are briefly described.

Inspection of Fertilizers in 1903. By F. W. Morse. (Bulletin No. 108, pp. 63–71.)

A brief statement regarding fertilizer inspection during 1903 in cooperation with the State Board of Agriculture is given, and analyses of wood ashes and miscellaneous fertilizing materials are reported.

The Pernicious or San José Scale Insect in New Hampshire. By C. M. Weed. (Bulletin No. 109, pp. 75–83, figs. 3.)

A brief account of the occurrence of this insect in New Hampshire, with notes on characteristics and methods of prevention and treatment, and the text of the State law providing for nursery inspection, approved March 4, 1903.

Experiments in Orchard Management in New England. By F. W. Rane. (Bulletin No. 110, pp. 87–106, figs. 6.)

The subjects discussed in this bulletin are tillage (including mulching), plant food (fertilizers), training the trees, pruning, thinning fruit, spraying, winter protection, and picking.

Ten Experiments with Potatoes and Potato Culture for New England. By F. W. Rane and H. F. Hall. (Bulletin No. 111, pp. 109–130, figs. 8.)

A summary is given of results of experiments with factory-mixed and home-mixed fertilizers, special formula fertilizers, different amounts of potash, hill application and combined hill and broadcast application, barnyard manure *vs.* no manure, plowing *vs.* harrowing in barnyard manure, fertilizer applied above or below the seed, variety tests (with descriptions), and culture tests.

New Mexico Station, Mesilla Park, L. Foster, Director.

Steer and Lamb Feeding. By J. J. Vernon. (Bulletin No. 50, pp. 45, figs. 6.)

An account is given of feeding experiments with cattle and sheep conducted during the winters 1901–2 and 1902–3 to determine whether feeding of cattle and sheep for market in New Mexico is feasible, which of the available feeds are best suited to the purpose under the prevailing conditions, and the best class of range stock for feeding.

New York Cornell Station, Ithaca, L. H. Bailey, Director.

Spray Calendar. (Bulletin No. 217, pp. 125–133.)

"In the preparation of this calendar the most important points regarding sprays have been selected and arranged in such manner that the grower can see at a glance what to apply and when to make the applications. The more important insects and fungus enemies are also mentioned, so that a fairly clear understanding of the work can be obtained by examining the table."

Onion Blight. By H. H. Whetzel. (Bulletin No. 218, pp. 137–161, figs. 17.)

This bulletin is divided into two parts, the first being a popular account of onion blight with remedies; the second a more technical account of the blight and other diseases of onions.

New York State Station, Geneva, W. H. Jordan, Director.

The Chemistry of Cottage Cheese. By F. H. Hall, L. L. Van Slyke, and E. B. Hart. (Bulletin No. 245, popular ed., pp. 10.)

A popular edition of Bulletin 245.

Shading Strawberries. By F. H. Hall, O. M. Taylor, and V. A. Clark. (Bulletin No. 246, popular ed., pp. 8.)

A popular edition of Bulletin 246.

A Pea Canner's Problem Solved. By F. H. Hall, H. A. Harding, and J. F. Nicholson. (Bulletin No. 249, popular ed., pp. 7.)

A popular edition of Bulletin 249.

The Nature of the Principal Phosphorus Compound in Wheat Bran. By A. J. Patten and E. B. Hart. (Bulletin No. 250, pp. 169–176.)

The results of investigations on this subject made in connection with a study of the metabolism of phosphorus and sulphur in the animal body are summarized.

Report of Analyses of Commercial Fertilizers for the Spring and Fall of 1903. By W. H. Jordan, L. L. Van Slyke, and W. H. Andrews. (Bulletin No. 252, pp. 191–268.)

NORTH DAKOTA STATION, Agricultural College, J. H. Worst, Director.

Scabies in Sheep and Cattle and Mange in Horses. By L. Van Es. (Bulletin No. 61, pp. 399–435, figs. 23.)

A discussion of the nature and treatment of these diseases, with plans and descriptions of dipping plants.

Fourteenth Annual Report, 1903. (Annual Report, 1903, pp. 254, figs. 16.)

This report contains summary accounts of the work of the year in the different departments of the station and includes also Bulletin 59 of the station on trees and fruit in North Dakota.

OHIO STATION, Wooster, C. E. Thorne, Director.

Varieties of Strawberries and Raspberries. By W. J. Green and C. W. Waid. (Bulletin No. 146, pp. 29–40, figs. 16.)

Notes are given on some of the less common varieties of these fruits which have been tested by the station. Observations on habits of growth, time of blooming and fruiting, fruitfulness, size, color, firmness, quality, etc., are recorded.

Calendar for Treatment of Plant Diseases and Insect Pests. By W. J. Green and A. D. Selby. (Bulletin No. 147, pp. 41–53.)

The preparation and use of the more important fungicides and insecticides are explained.

OKLAHOMA STATION, Stillwater, J. Fields, Director.

Disinfecting Power of Coal-Tar Dips. By L. L. Lewis and J. F. Nicholson. (Bulletin No. 62, pp. 16.)

This is an account of experiments undertaken to determine whether certain preparations commonly known as coal-tar dips are reliable disinfectants when used in very dilute solution (1 to 2 per cent).

Tuberculosis in Hogs. By L. L. Lewis. (Bulletin No. 63, pp. 8.)

This bulletin discusses the transmissibility of tuberculosis from cattle to hogs, and reports observations on the effect of feeding tuberculous milk to hogs.

OREGON STATION, Corvallis, J. Withycombe, Director.

A Continuation of Bulletin No. 74 on Onions; Also Notes on Strawberries and Varieties of Vegetables. By G. Coote. (Bulletin No. 77, pp. 16, figs. 5.)

This is largely a repetition of an earlier bulletin, but contains additional data for comparative tests of field seeding and transplanting of onions, and some notes on a few varieties of strawberries and vegetables.

Canning Cheese. By E. F. Pernot. (Bulletin No. 78, pp. 8.)

A brief account is given of the methods successfully followed in the station experiments.

Plant Food and Use of Fertilizers. By A. L. Knisely. (Bulletin No. 79, pp. 40.)

A popular discussion of this subject, including directions for making fertilizer experiments and preparing mixtures for different crops.

Some Results in Swine Feeding. By J. Withycombe. (Bulletin No. 80, pp. 19, figs. 5.)

This bulletin is intended to give "to the practical farmer in a popular form the results secured from the different classes of grains and forage plants found on the average farm and fed to fattening and growing swine." The feeds used in the experiments reported included apples, ground wheat, corn, barley, potatoes, peas, clover hay and silage, clover pasture, rape, crimson clover, alfalfa, and skim milk, especial attention being given to wheat as a feed for hogs.

RHODE ISLAND STATION, Kingston, H. J. Wheeler, Director.

A Six-Year Rotation of Crops. By H. J. Wheeler and G. E. Adams. (Bulletin No. 99, pp. 81–118, pl. 1.)

The results obtained in the first course of the following six-year rotation are reported: (1) Indian corn on grass sod, (2) potatoes, (3) winter rye, (4) common red clover and grass (timothy and redtop), (5) grass, and (6) grass.

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. 173–300+ VII, pls. 8.)

This gives summary accounts of operations in the different departments of the station during the year ended June 30, 1903, and includes the following special articles: Blooming period of fruits, clover, color of flowers, corn selection, gasoline as a remedy against enemies of the squash, huckleberries, ilex, spraying peach foliage, strawberry seedlings, durability of posts, the function of sodium in nitrate of soda, and a summary of meteorological observations during the year.

SOUTH CAROLINA STATION, Clemson College, P. H. Mell, Director.

Results of Practical Experiments with Peach Borer. By C. C. Newman. (Bulletin No. 83, pp. 9.)

This bulletin briefly reports the results of experiments with different methods of treatment of the peach borer and gives directions for applying those remedies which have proved to be most satisfactory, showing the importance of having this work thoroughly done and at the proper season.

The One-Horse Farm. By J. S. Newman. (Bulletin No. 84, pp. 9.)

The desirability of replacing the one-horse farm system by more progressive methods, using improved machinery and rotations, is discussed.

Commercial Fertilizers. By M. B. Hardin. (Bulletin No. 85, pp. 9.)

A summary of analyses of fertilizers examined during the year ended June 30, 1903, is given, with a comparison of results of analyses made during the last 13 years, and additional information regarding the general character of the cotton-seed meal sold in the State during the same period.

Tobacco Culture in South Carolina. By T. B. Young. (Bulletin No. 86, pp. 21, figs. 4.)

A thesis prepared by a member of the graduating class of 1903 of Clemson College.

Analyses of Commercial Fertilizers. By M. B. Hardin. (Bulletin No. 87, pp. 18.)

The results of analyses of 171 samples of fertilizers collected during the season of 1903–4 are reported, with notes on the composition and valuation of fertilizers.

TEXAS STATION, College Station, J. A. Craig, Director.

The Composition of Texas Cotton-Seed Meal. By H. H. Harrington and G. S. Fraps. (Bulletin No. 70, pp. 15, maps 2.)

The results of a study of the composition of different samples of Texas cotton-seed meal are reported and discussed with reference to their value for feeding and fertilizing purposes.

Irish Potatoes at Troupe. By E. C. Green. (Bulletin No. 71, pp. 16, figs. 4.)

This is a preliminary report of the investigations on the economical production of early potatoes in progress at the Troupe substation. It summarizes the results of cultural, variety, and fertilizer tests.

UTAH STATION, Logan, J. A. Widtsoe, Director.

The Grain Smuts. By L. A. Merrill and B. F. Eliason. (Bulletin No. 84, pp. 35–44.)

This bulletin treats briefly of the cause, nature, and methods of prevention of grain smuts, special attention being given to the formalin treatment.

Pear Blight. By W. N. Hutt. (Bulletin No. 85, pp. 43–52.)

This is a brief résumé of the history and nature of this disease, together with the treatment which has been found to be most successful during the last two years at the Utah Station.

The Right Way to Irrigate. By J. A. Widtsoe and W. W. McLaughlin. (Bulletin No. 86, pp. 53–101, figs. 35.)

This is a popular exposition of some of the results reported in Bulletin 80 of the Utah Station.

The Codling Moth. By E. D. Ball. (Bulletin No. 87, pp. 105–145, figs. 20.)

This bulletin describes the different stages of this insect, discusses its life history, means of destruction, and remedial measures, and gives results of experiments during 1903 on methods of treatment.

Thirteenth Annual Report, 1902. (Annual Report, 1902, pp. LVIII, pls. 2, dgms. 2.)

This report contains summary accounts of the work of the year in the different departments of the station, with a list of the bulletins issued by the station since its organization.

WISCONSIN STATION, Madison, W. A. Henry, Director.

Licensed Commercial Fertilizers and Feeding Stuffs, 1904. By F. W. Woll and G. A. Olson. (Bulletin No. 113, pp. 22.)

This bulletin gives the text of the State fertilizer and feeding-stuffs laws and reports the results of inspection of fertilizers and feeding stuffs during the year, with some general discussion of these substances.

Twentieth Annual Report, 1903. (Annual Report, 1903, pp. XI + 414, pls. 4, figs. 30.)

This contains besides the report of the director summarizing the work of the station up to December 1, 1903, a description of the new agricultural building, a history of the college and station, an account of a comparison of whole corn and corn meal for fattening pigs, and summaries of the work of the station during the period 1893–1903 on the following subjects: The feeding value of rape and other succulent foods; experiments in lamb feeding; breeding lambs for market; the flock and its management; feeding trials with pigs; experiments in feeding and management of dairy cows; testing cows at the farm; tests of dairy cows; methods and apparatus for testing milk and milk products; pasteurization as applied to butter making; preservation of milk for direct use by pasteuri-

zation; conditions affecting the consistency of milk—means of restoring consistency of pasteurized cream; experimental work on methods of cheese manufacture; investigations regarding the curing of cheese; galactase, the inherent digestive enzym of milk; cold curing of cheese; experiments in paraffining cheese; special series of cheese bulletins; bacteriology of cheese; dairy bacteriological problems; miscellaneous bacteriological investigations; causes of silage fermentation; investigations on bovine tuberculosis; anthrax in Wisconsin; black rot of cabbage; experiments with grain and forage plants, 1899–1903; treatment of seed grain for the prevention of smut; experiments with sugar beets; report of the division of feeding stuffs and fertilizers; miscellaneous chemical investigations; irrigation in humid climates; studies on the improvement of marsh soils; studies on the development and distribution of nitrates and total water-soluble salts in field soils; problems in farm mechanics; native plums; the origin of development of fruit buds; the treatment of seed oats for the prevention of smut; miscellaneous horticultural work; report of nursery inspection for the State of Wisconsin.

WYOMING STATION, Laramie, B. C. Buffum, Director.

Seepage Investigations in the Valley of the Laramie River. By B. P. Fleming. (Bulletin No. 61, pp. 32, figs. 3.)

The causes, extent, and prevention of loss of water by seepage are discussed and the results of seepage measurements on Laramie River, Sand Creek, and a number of irrigation canals in Wyoming are reported.

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United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS,

A. C. True, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING JULY AND AUGUST, 1904.

Note.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

Alabama College Station, Auburn, J. F. Duggar, Director.

Feeding and Grazing Experiments with Beef Cattle. By J. F. Duggar, R. W. Clarke, and J. M. Jones. (Bulletin No. 128, pp. 51–88, pls. 2.)

This is a report of experiments, extending over 84 days, with 20 young grade steers of the beef breeds, to compare cotton seed with cotton-seed meal, sorghum hay with a mixture of cowpea and sorghum hay, and sorghum hay with shredded corn stover.

Arizona Station, Tucson, R. H. Forbes, Director.

Relation of Weather to Crops. By A. J. McClatchie. (Bulletin No. 48, pp. 347–456, pl. 1.)

The aim of this bulletin "is not only to record and discuss the observations made during the past six years upon the relation of the weather to crops, but to bring together in one publication many minor facts that have not found their way into previous bulletins." The observations upon which the discussion is based were made on the station farm near Phoenix, Ariz.

California Station, Berkeley, E. W. Hilgard, Director.

Commercial Fertilizers. By G. Roberts. (Bulletin No. 157, pp. 29.)

The text of the State law regulating the sale of commercial fertilizers passed by the legislature during the session of 1903 is given, with a report on analyses made under its provision and explanations of terms used in reporting fertilizer analyses.

Report on Asparagus Rust Investigation. By R. E. Smith. (Circular No. 9, pp. 20, figs. 10.)

This is a preliminary report discussing briefly the nature, injury, dissemination, extent of occurrence in the State, conditions favoring development, and methods of treatment of this disease.

Hawaii Station, Honolulu, J. G. Smith, Special Agent in Charge.

Mosquitoes in Hawaii. By D. L. Van Dine. (Bulletin No. 6, pp. 30, figs. 12.)

This bulletin describes the common Hawaiian mosquitoes, their distribution, habits, natural enemies and diseases, and methods of control. The information given is based upon the results of three years' work and investigation in connection with a "mosquito campaign" in Honolulu.

IDAHO STATION, Moscow, H. T. French, Director.

Planting the Apple Orchard. By L. B. Judson. (Bulletin No. 43, pp. 319–351, pls. 9. figs. 7.)

A popular summary of information on this subject adapted especially to Idaho conditions.

Alkali and the Treatment of Alkali Lands. By J. S. Burd. (Bulletin No. 44, pp. 355–367.)

A popular compilation of information on this subject preliminary to an alkali survey of the State.

ILLINOIS STATION, Urbana, E. Davenport, Director.

Feeding Dairy Cows. By W. J. Fraser. (Circular No. 75, pp. 18.)

A general discussion of feeding stuffs and the best methods of compounding them into rations for dairy cows.

Improvement of Dairy Herds. By H. A. Hopper. (Circular No. 76, pp. 15, figs. 3.)

A popular explanation of methods of improving dairy herds, especially as applied to Illinois conditions.

Records of Individual Cows on Dairy Farms. By A. J. Glover. (Circular No. 77, pp. 31, figs. 20.)

This circular contains a record of the milk and butter production of 10 herds containing 189 cows, with an account of how each herd was fed and cared for and suggestions as to improvement of conditions.

LOUISIANA STATIONS, Audubon Park, New Orleans, W. C. Stubbs, Director.

Rice. By W. C. Stubbs, W. R. Dodson, and C. A. Browne, jr. (Bulletin No. 77, 2d ser., pp. 362–458, pls. 18, figs. 13.)

This is a revision of Bulletin 61 of the station, including additional information obtained in recent experiments, especially pertaining to the feeding value of the by-products of rice mills. The principal subjects discussed in this bulletin are history, preparation of soil, planting, flooding, harvesting, noxious weeds in the rice fields, feeding rice bran and rice polish, and determination of digestible nutrients.

MAINE STATION, Orono, C. D. Woods, Director.

A Study of Reciprocal Crosses. By M. B. Cummings. (Bulletin No. 104, pp. 81–100, pls. 4.)

"This bulletin contains the results of studies upon the cross fertilization of certain varieties of tomatoes and squashes."

Fertilizer Inspection. By C. D. Woods and J. M. Bartlett. (Bulletin No. 105, pp. 101–112.)

"This bulletin contains the analyses of samples collected by the station of the brands of fertilizers licensed in 1904."

MASSACHUSETTS STATION, Amherst, H. H. Goodell, Director.

A Farm Woodlot. By F. A. Waugh. (Bulletin No. 97, pp. 20, pls. 13.)

"It is the purpose of this bulletin to set forth a single definite concrete example of practical forestry under conditions typical of nearly the whole State of Massachusetts and of large areas in neighboring States. The problem in hand is that of the ordinary woodlot, and the conditions are those prevalent on a majority of New England farms." The example selected for description and discussion is a 12½-acre woodlot of mixed growth belonging to the Massachusetts Agricultural College.

Analyses of Commercial Fertilizers and Manurial Substances. By C. A. Goessmann. (Bulletin No. 100, pp. 30.)

This bulletin reports the results of analyses of miscellaneous fertilizing materials sent to the station for examination and of licensed fertilizers collected in the general markets, as well as a statement of the market values of fertilizing materials in 1903 and 1904.

Meteorological Observations. By J. E. Ostrander and G. W. Patch. (Meteorological Bulletin No. 186, pp. 4.)

This is a summary for June, 1904.

Meteorological Observations. By J. E. Ostrander and G. W. Patch. (Meteorological Bulletin No. 187, pp. 4.)

This is a summary for July, 1904.

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. 175, figs. 3.)

This contains brief reports of the treasurer and of the heads of the different departments of the station and the following special articles: The Influence of Current Electricity on Plant Growth, by G. E. Stone; The Influence of the Atmospherical Electrical Potential on Plants, by N. F. Monahan; Effect of Feed on the Composition of Milk and Butter Fat, and on the Consistency or Body of Butter, by J. B. Lindsey et al.; Digestion Experiments with Sheep, by J. B. Lindsey et al.; Raising Dairy Calves without Milk, by J. B. Lindsey.

MICHIGAN STATION, Agricultural College, C. D. Smith, Director.

Small Fruits for 1904. By L. R. Taft and M. L. Dean. (Bulletin No. 213, pp. 12.)

Notes are given on culture and tests of varieties of strawberries and tests of varieties of blackberries and cherries, as well as on cover crops for apple orchards.

Tomatoes and Potatoes. By L. R. Taft and M. L. Dean. (Bulletin No. 214, pp. 13–22.)

Tests of varieties are briefly reported. Bulletins 213 and 214 are issued as one pamphlet.

Experiments with Sugar Beets in 1903. By C. D. Smith. (Bulletin No. 215, pp. 19.)

The experiments reported include studies of the variation in sugar content of individual beets, variety tests, planting at different distances, fertilizer experiments, and studies of soil exhaustion by beets and experiments in the treatment of leaf blight by spraying with Bordeaux mixture or manuring with nitrate of soda or common salt.

Insect Enemies of Fruits in Michigan. Fungus Diseases of Fruits in Michigan. Spraying Calendar. By R. H. Pettit, B. O. Longyear, and L. R. Taft. (Bulletin No. 216, pp. 7.)

This is a brief review of Special Bulletins 24, 25, and 26 of the station.

Spraying Calendar. By L. R. Taft and C. D. Smith. (Special Bulletin No. 26, folio.)

Report of the South Haven Substation for 1903. By T. A. Farrand. (Special Bulletin No. 27, pp. 36.)

Tests of varieties of small fruits, orchard fruits, and nuts, of cover crops, and of dust sprays are briefly reported.

Report of the Upper Peninsula Substation for the Year 1903. By L. M. Geismar and C. D. Smith. (Special Bulletin No. 28, pp. 35.)

This includes a statement of weather conditions in the Upper Peninsula and brief accounts of the various crops grown during the year at the substation.

Additional Work upon the Associative Action of Bacteria in the Souring of Milk and in Other Milk Fermentations. By C. E. Marshall. (Special Bulletin No. 29, pp. 7.)

An account of a continuation of investigations previously reported in Special Bulletin 23 of the station.

MINNESOTA STATION, St. Anthony Park, W. M. Liggett, Director.

Eleventh Annual Report, 1903. (Annual Report, 1903, pp. 280, pls. 12, figs. 72.)

This contains a brief report by the director on the work and expenditures of the station, as well as the bulletins issued by the station during the year.

MISSISSIPPI STATION, Agricultural College, W. L. Hutchinson, Director.

Report of Work at McNeill Branch Station for 1903. By E. B. Ferris. (Bulletin No. 83, pp. 34.)

Accounts are given of improvements and additions to equipment; of feeding experiments with steers; and culture, fertilizer, and variety tests of a large number of field crops, fruits, and vegetables. The report also contains a meteorological summary for the year and data relating to the composition of the soils of the station and of the fertilizers used.

MISSOURI STATION, Columbia, H. J. Waters, Director.

The "Sting" in the Apple. By J. M. Stedman. (Bulletin No. 64, pp. 24, figs. 10.)

The nature, habits, injuries, and treatment of the plum curculio are discussed.

NEW JERSEY STATIONS, New Brunswick, E. B. Voorhees, Director.

The Use of Fertilizers. A Review of the Results of Experiments with Nitrate of Soda. By E. B. Voorhees. (Bulletin No. 172, pp. 32.)

The results of experiments on high-value market garden crops and on low-value field crops are summarized and discussed.

Experiments with Manures and Fertilizers on Different Varieties of Asparagus and Raspberries. By A. T. Jordan. (Bulletin No. 173, pp. 20.)

Alfalfa Hay, Cowpea Hay, and Sow Bean Silage as Substitutes for Purchased Feeds. Cotton-seed Meal versus Wheat Bran and Dried Brewers' Grains. By C. B. Lane. (Bulletin No. 174, pp. 24.)

The results of three experiments to determine the relative effect of these feeds on the yield and composition of milk, on the cost of milk and butter, and on the maintenance of the live weight of the individual animals are reported.

Concentrated Feeding Stuffs. By J. P. Street, W. P. Allen, and V. J. Carberry. (Bulletin No. 175, pp. 68.)

This bulletin gives the results of examinations of 403 samples of feeding stuffs.

Sixteenth Annual Report, 1903. (Annual Report, 1903, pp. X+659, pls. 45, figs. 32.)

This report gives the organization of the stations, a brief statement of receipts and expenditures, a summary of the work of the year by the director, reports and special articles on fertilizers, feeding stuffs, changes in composition of corn meal due to the action of molds, investigations relative to the use of nitrogenous materials, experiments with nitrate of soda, experiments on transformation and fixation of nitrogen by bacteria, climatic conditions and plat experiments with various fruits and vegetables, culture and management of

forage plants and soiling crops, inoculation experiments with alfalfa, silage, cost of producing milk, relation of dairying to soil exhaustion, experiments with milk fever, dairy herd records, feeding experiments, experimental studies in oyster propagation, the improvement and crossing of vegetables, experiments with fruits, flowers, vegetables, lawn grasses, seeds and seedlings, weeds, plant diseases (especially mildews), fungicides, fungi, as related to weather, notes on various insects observed during the year, on insecticides and natural enemies, and on mosquito investigations.

NEW YORK CORNELL STATION, Ithaca, L. H. Bailey, Director.

Diseases of Ginseng. By J. M. Van Hook. (Bulletin No. 219, pp. 165–186, figs. 26.)

This is a preliminary report of investigations made in New York ginseng gardens on wilt, nematode root galls, black rot, soft rot, leaf spot, and miscellaneous pests. General advice regarding the use of carbon bisulphid as a root insecticide and on the handling of roots is given.

Skimmed Milk for Pigs. By H. H. Wing. (Bulletin No. 220, pp. 189–197.)

This is an account of experiments extending over 14 weeks with 55 young grade Cheshire pigs, divided into six lots of 7 to 12 pigs each, planned with the idea of using a maximum of skim milk and a minimum of expensive concentrated foods.

Alfalfa in New York. By J. L. Stone. (Bulletin No. 221, pp. 14, figs. 2.)

This is a summary of information particularly relating to winterkilling of alfalfa, based largely upon information furnished by alfalfa growers in different parts of the State and upon the personal observations of the author.

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

New York Apples in Storage. By S. A. Beach and V. A. Clark. (Bulletin No. 248, pp. 83–152, pls. 2.)

"This bulletin treats of different varieties of apples with regard to their natural season of ripening and keeping and their adaptability for storage. The material has been obtained from three distinctly different sources. First, from tests made at this station on fruit which was grown in the station orchards and stored in a small warehouse without artificial refrigeration; second, from men who have had years of practical experience in handling fruit, both in cold storage and in ordinary fruit warehouses; and third, from tests made by the United States Department of Agriculture in cooperation with this station on numerous varieties of apples from the station orchards in chemical cold storage."

OHIO STATION, Wooster, C. E. Thorne, Director.

Peach Diseases, III. By A. D. Selby. (Bulletin No. 148, pp. 55–67, pls. 7.)

This is an account of a continuation of studies previously reported in Bulletins 92 and 104. "This bulletin contains a series of notes upon the prevalence, surrounding conditions, and methods of prevention of leaf curl and scab of the peach during recent years in Ohio."

OKLAHOMA STATION, Stillwater, J. Fields, Director.

Thirteenth Annual Report, 1904. (Annual Report, 1904, pp. 68.)

This is a summary statement by the director of the work and expenditures of the station during the year, to which are added reprints of some of the press bulletins issued during the year.

OREGON STATION, Corvallis, J. Withycombe, Director.

The Apple in Oregon. By E. R. Lake. (Bulletin No. 81, pp. 31, pls. 8, figs. 6, map 1.)

This is the first of a proposed series of bulletins on this subject, and gives compiled information relating to the history of apple growing in Oregon, selection of soil and varieties, and methods of planting.

PENNSYLVANIA STATION, State College, H. P. Armsby, Director.

Variety Tests of Wheat. By G. C. Watson and A. K. Risser. (Bulletin No. 67, pp. 8.)

The results of tests of a number of the leading varieties during 1903 and previous years are summarized.

Methods of Steer Feeding. By T. I. Mairs and A. K. Risser. (Bulletin No. 68, pp. 10.)

This is an account of a continuation of previous experiments to test the relative economy of feeding steers in open sheds and in warm barn basements.

RHODE ISLAND STATION, Kingston, H. J. Wheeler, Director.

When to Spray. By A. E. Stene. (Bulletin No. 100, pp. 121–148, pls. 3, figs. 3.)

A short résumé of spraying operations for different insects and plant diseases, with formulas and notes on some recent developments in spraying.

Analyses of Commercial Fertilizers. By H. J. Wheeler, B. L. Hartwell, and J. W. Kellogg. (Bulletin No. 101, pp. 151–160.)

"This bulletin contains the analyses of such of the commercial fertilizers found on sale in Rhode Island in 1904 as were branded especially for potatoes and vegetables. It also contains analyses of samples of bone, tankage, muriate of potash, and nitrate of soda."

SOUTH CAROLINA STATION, Clemson College, P. H. Mell, Director.

Sorghum as a Sirup Plant. By J. S. Newman et al. (Bulletin No. 88, pp. 31.)

This bulletin gives a brief history of experiments with sorghum, the results of tests of varieties at the station during 1900 to 1903, notes on methods of culture and fertilizing, and a brief account of chemical studies of sorghums grown during 1903.

Sanitary Conditions in the Home and on the Farm. By H. Metcalf. (Bulletin No. 89, pp. 31, figs. 9.)

A popular discussion of this subject.

SOUTH DAKOTA STATION, Brookings, J. W. Wilson, Director.

Millet for Fattening Swine. By J. W. Wilson and H. G. Skinner. (Bulletin No. 83, pp. 15, figs. 5.)

Two series of experiments, covering fifty-six and twenty-eight days, respectively, in which millet was compared with barley and wheat are reported.

Report of Investigations at the Highmore Station for 1903. By W. A. Wheeler. (Bulletin No. 84, pp. 14.)

A summary of the results of tests of alfalfa, millets, sorghum, corn, rape, kale, macaroni wheat, barley, oats, and emmer, with a statement of the monthly precipitation at this place.

Early Garden Peas. By N. E. Hansen. (Bulletin No. 85, pp. 8.)

Notes are given on the growth, characteristics, and cooking quality of 153 early varieties which had come to maturity before the destruction of the plants by a hailstorm July 15.

Fattening Range Lambs. By J. W. Wilson and H. G. Skinner. (Bulletin No. 86, pp. 16, fig. 1.)

This is an account of an experiment with 100 wether lambs from 5 to 7 months old, which were purchased from ranchmen and pastured on rape for ten weeks or until severe cold weather, when they were given a light grain ration. On January 2 the lambs were divided into 10 lots, which were used for comparative tests of common wheat, macaroni wheat, oats, barley, spelt, millet, corn, corn and spelt, barley and spelt, and wheat and spelt, with a basal ration of hay.

The Western Sand Cherry. By N. E. Hansen. (Bulletin No. 87, pp. 64, pls. 16.)

This is a preliminary report of progress in the work of improving the sand cherry. It includes a brief review of the history of work along this line and summarizes the results of experiments at the South Dakota Station in improvement by selection and crossing, on the use of the sand cherry as a stock for stone fruits, grafting the sand cherry on plum stocks, methods of propagation, etc.

Breeding Hardy Fruits. By N. E. Hansen. (Bulletin No. 88, pp. 32, pls. 27.)

A brief account of work in this line at the South Dakota Station.

VERMONT STATION, Burlington, J. L. Hills, Director.

Commercial Fertilizers. By J. L. Hills, C. H. Jones, and F. M. Hollister. (Bulletin No. 108, pp. 299–364.)

This bulletin gives the results of inspection under provisions of the State law, with a discussion of the quality of plant food furnished, selling prices and valuations, classification of brands, and of the effects upon the character of farm manures of the food and care of the animal, stable construction and management, the use of absorbents, etc., as well as notes on the causes and prevention of manurial waste and the use and application of manures.

WASHINGTON STATION, Pullman, E. A. Bryan, Director.

A Report on Irrigation Conditions in the Yakima Valley, Washington. By O. L. Waller. (Bulletin No. 61, pp. 29.)

This is a report of investigations made in cooperation with the Office of Experiment Stations of this Department, and deals with the measurement, duty, and price of water; value of irrigated land; seepage losses; drainage; and nature and acquirement of water rights.

WEST VIRGINIA STATION, Morgantown, J. H. Stewart, Director.

Commercial Fertilizers. By J. H. Stewart and B. H. Hite. (Bulletin No. 92, pp. 64.)

This bulletin gives the results of inspection of fertilizers in West Virginia from May 1 to December 31, 1903.

WISCONSIN STATION, Madison, W. A. Henry, Director.

A Lesson in Bovine Tuberculosis. By H. L. Russell. (Bulletin No. 114, pp. 8, fig. 1.)

This bulletin urges the importance of buying animals only on the basis of the tuberculin test.

WYOMING STATION, Laramie, B. C. Buffum, Director.

Some Food Products and Their Adulteration. By H. G. Knight and R. B. Moudy. (Bulletin No. 62, pp. 55.)

A report of work done under the pure food law of Wyoming, which went into effect in September, 1903. The results of examinations of 425 samples of food products are reported and discussed.

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United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS.

A. C. True, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING SEPTEMBER AND OCTOBER, 1904.

Note.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

Alabama College Station, Auburn, J. F. Duggar, Director.

The Mexican Cotton-Boll Weevil. By E. M. Wilcox. (Bulletin No. 129, pp. 91–104, figs. 4.)

A summary, with bibliography, of the present knowledge regarding this insect.

California Station, Berkeley, E. W. Hilgard, Director.

Contribution to the Study of Fermentation. By E. H. Twight and C. S. Ash. (Bulletin No. 159, pp. 26, figs. 16.)

This is a report upon cooperative investigations carried on during the vintage of 1903 by the station and the California Wine Association of San Francisco, the objects of which were to study "(1) the influence of temperature on fermentation; (2) the influence of acid (acidity of must) on fermentation; (3) the influence of selected cultivated yeasts on fermentation as compared with the natural (wild) yeasts; and (4) the comparative values of the wines derived from these experiments."

Silk Culture. By C. W. Woodworth. (Circular No. 12, pp. 6.)

A compiled circular of information for those desiring to enter the business of silk culture.

Florida Station, Lake City, Andrew Sledd, Director.

Pineapple Culture, II. Varieties. By H. H. Hume and H. K. Miller. (Bulletin No. 70, pp. 35–62, pls. 10, figs. 4.)

This bulletin gives a general description of the botanical characteristics of the pineapple plant and a classification and descriptions of varieties.

Japanese Persimmons. By H. H. Hume and F. C. Reimer. (Bulletin No. 71, pp. 67–110, figs. 9.)

A brief history of the Kaki or Japanese persimmon is given, with a classification and descriptions of varieties; notes on methods of propagation, culture, marketing, and insect enemies; and a bibliography of American literature.

Feeding Horses and Mules on Home-Grown Feed Stuffs. By C. M. Conner. (Bulletin No. 72, pp. 115–126.)

The object of the experiment described in this bulletin was to determine whether home-grown feeding stuffs could be profitably substituted for corn and oats. The experiments were made with 8 head of horses and mules during the fall and winter, the home-grown products substituted for oats and a part of the corn being sweet potatoes, cassava, and cane sirup.

The Honey Peach Group. By F. C. Reimer. (Bulletin No. 73, pp. 131–153, figs. 4.)

History in Europe and America, and description of varieties of this group of peaches.

Anthracnose of the Pomelo. By H. H. Hume. (Bulletin No. 74, pp. 159–172, figs. 4.)

This bulletin describes a disease of the fruit, leaves, and twigs of pomelos caused by *Colletotrichum glœosporioides*, and discusses its distribution, conditions favoring its development, and remedies.

ILLINOIS STATION, Urbana, E. Davenport, Director.

Selection of Seed in Potato Growing. By E. M. East. (Circular No. 81, pp. 12.)

The propagation of the potato, the production of new varieties, and the running out of varieties are discussed, and seed selection with reference to type characteristics, size, shape, color, depth and number of eyes, tendency to second growth, and keeping quality is explained, the work of A. Girard in France being briefly reviewed.

INDIANA STATION, Lafayette, A. Goss, Director.

Diseases of Swine. By R. A. Craig and A. W. Bitting. (Bulletin No. 100, pp. 71–204, figs. 23.)

A brief monograph dealing with all the diseases of swine which have come under the observation of the authors, giving in each case symptoms, causes, characteristics, and treatment. The work was prepared "with the view of giving some help to the numerous breeders of swine."

KANSAS STATION, Manhattan, J. T. Willard, Director.

Experiments in Feeding Steers and in Breeding and Feeding Pigs. By D. H. Otis. (Bulletin No. 124, pp. 57, figs. 52.)

An account is given of experiments with 20 three-year-old, 40 two-year-old, and 20 yearling steers, and 19 calves, fed mainly on rations of silage, alfalfa hay, Kafir corn, and cotton-seed meal. A record is also given of observations on gains of shoats on alfalfa or rape pasture as compared with dry feeding, conditions affecting size and growth of litters, feeding alfalfa hay to shoats, comparative tests of pure-bred and cross-bred pigs, value of by-products of the dairy for hogs in dry lots and on pasture, experience with runt pigs, dipping hogs, farrowing houses, slaughter tests, etc.

MAINE STATION, Orono, C. D. Woods, Director.

Soy Beans in Maine. Feeding Experiments with Cows. Alfalfa. By C. D. Woods and J. M. Bartlett. (Bulletin No. 106, pp. 113–128.)

This bulletin discusses the results of experiments with the soy bean in Maine; feeding experiments with cows in which soy-bean silage was compared with corn silage, and in which a proprietary feed was compared with oil meal and bran; and notes upon experiments with alfalfa.

MARYLAND STATION, College Park, H. J. Patterson, Director.

Systems of Keeping Milk and Butter Records. By C. F. Doane. (Bulletin No. 94, pp. 22, figs. 2.)

This bulletin explains the importance of keeping milk and butter records, describes methods, and gives forms.

The Character of Milk during the Period of Heat. By C. F. Doane. (Bulletin No. 95, pp. 25–30.)

The results of chemical analyses which are reported show the milk to have been practically normal and fit for consumption during the period.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. XVI+ 104.

A brief account of the work and expenditures of the station during the year ended June 30, 1904, is given. The bulletins issued during the year are bound with the report.

MASSACHUSETTS STATION, Amherst, H. H. Goodell, Director.

Inspection of Concentrates. By J. B. Lindsey et al. (Bulletin No. 98, pp. 35.)

This bulletin contains notes on compliance with the State feed law, suggestions to purchasers, standards of composition of the more important feeding stuffs, a classification of feeding stuffs, and analyses of a large number of feeds collected in the State, with a discussion of results.

Dried Molasses-beet-pulp. The Nutrition of Horses. By J. B. Lindsey, P. H. Smith, et al. (Bulletin No. 99, pp. 16.)

The method of manufacture, character, composition, and digestibility of this product are discussed, methods of feeding it are described, and feeding experiments with cows in which the molasses-beet-pulp was compared with corn meal are briefly reported. Methods of feeding horses are also briefly discussed and rations suggested.

Meteorological Observations. By J. E. Ostrander and G. W. Patch. (Meteorological Bulletin No. 188, pp. 4.)

This is a summary for August, 1904.

Meteorological Observations. By J. E. Ostrander and G. W. Patch. (Meteorological Bulletin No. 198, pp. 4.)

This is a summary for September, 1904.

MICHIGAN STATION, Agricultural College, C. D. Smith, Director.

Fertilizer Analyses. By F. W. Robison. (Bulletin No. 217, pp. 23.)

This bulletin gives the results of fertilizer inspection in the State during 1904, with notes on purposes of the inspection and the nature and use of fertilizers.

Some Essential Soil Changes Produced by Micro-organisms. By S. F. Edwards. (Bulletin No. 218, pp. 25–30, fig. 1.)

"The object of this bulletin is to review simply and briefly the present knowledge of soil bacteriology in its relation to agriculture with a view to emphasizing the close relationship between bacteriologic principles and the common operations of tilling the soil."

MONTANA STATION, Bozeman, F. B. Linfield, Director.

Sugar Beets. By F. W. Traphagen. (Bulletin No. 52, pp. 56.)

This bulletin gives the results of analyses of beets grown in different parts of the State during 1903, with a discussion of the adaptability of the State to the sugar-beet industry.

Tenth Annual Report, 1903. (Annual Report, 1903, pp. 103, figs. 3.)

This report gives summary accounts of the operations in the different departments of the station during the year.

NEBRASKA STATION, Lincoln, E. A. Burnett, Director.

Feeding Experiments with Cattle. By E. A. Burnett and H. R. Smith. (Bulletin No. 85, pp. 22, figs. 4.)

Experiments here reported included tests of hay with and without grain for calves, roughage supplementary to corn for fattening yearling steers, and corn *v.* corn and oil meal on grass for fattening two-year-old steers.

Destroying Prairie Dogs. By A. T. Peters and S. Avery. (Bulletin No. 86, pp. 15.)

Experiments with various poisons and with fumigation are reported and discussed. Simple practical methods of treatment are described.

Seventeenth Annual Report, 1903. (Annual Report, 1903, pp. 112, figs. 9.)

This includes a brief statement of the work and expenditures of the station during 1903, to which are added special articles on a fungus disease of corn, a corn mold, heredity in bean hybrids, and a soft rot of the sugar beet.

NEW JERSEY STATIONS, New Brunswick, E. B. Voorhees, Director.

Analyses and Valuations of Commercial Fertilizers. By J. P. Street, W. P. Allen, and V. J. Carberry. (Bulletin No. 176, pp. 23.)

Analyses of 280 samples of fertilizers examined during 1904 and representing 104 manufacturers are reported in this bulletin.

NEW MEXICO STATION, Mesilla Park, L. Foster, Director.

Native Ornamental Plants of New Mexico. By E. O. Wooton. (Bulletin No. 51, pp. 40, pls. 12.)

This bulletin suggests the desirability of more ornamental planting, recommends the use of native plants, and describes various species suited to the purpose, and gives directions for selecting, planting, and caring for ornamentals.

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

Keeping Quality of Apples. By F. H. Hall, S. A. Beach, and V. A. Clark. (Bulletin No. 248, popular ed., pp. 11.)

Report of Analyses of Commercial Fertilizers for the Spring of 1904. By W. H. Jordan, L. L. Van Slyke, and W. H. Andrews. (Bulletin No. 253, pp. 269–317.)

The results of inspection of 275 brands of fertilizers collected during the spring of 1904 are reported.

Fall Spraying with Sulphur Washes. By P. J. Parrott and F. A. Sirrine. (Bulletin No. 254, pp. 317–337, pls. 6.)

"This bulletin contains the details of the first year's experiment by this station to determine the effects of fall applications of various sulphur washes upon fruit and leaf buds, and the comparative values of these sprays for San José scale treatment. The tests were made upon standard varieties of fruits in orchards located at Queens and Geneva."

Fall Use of Sulphur Sprays. By F. H. Hall, P. J. Parrott, and F. A. Sirrine. (Bulletin No. 254, popular ed., pp. 8.)

Inspection of Feeding Stuffs. By W. H. Jordan and F. D. Fuller. (Bulletin No. 255, pp. 339–366.)

The results of inspection of 263 samples of feeding stuffs collected during the spring of 1904 are reported.

OHIO STATION, Wooster, C. E. Thorne, Director.

Forcing Tomatoes. By W. J. Green and C. W. Waid. (Bulletin No. 153, pp. 27, figs. 12.)

Suggestions and advice based on experiments at the station extending over several years are given regarding the growing of tomatoes under glass for spring and early summer market, methods of irrigation, varieties, crating, insects, and diseases.

PORTO RICO STATION, Mayaguez, D. W. May, Special Agent in Charge.

Propagation and Marketing of Oranges in Porto Rico. By H. C. Henricksen. (Bulletin No. 4, pp. 24, pls. 6, figs 4.)

A description of methods intended for the instruction of "small nurserymen and planters throughout the island, or those men who are without experience in propagating and growing oranges and other citrus fruits." Also published in the Spanish language.

Coffee Planting in Porto Rico. By J. W. Van Leenhoff. Circular No. 5, pp. 14, figs. 6.)

A brief account is given of work at the experiment station in improving an old plantation and in establishing a new one, with detailed instructions as to how to plant coffee in Porto Rico. This circular is published in both English and Spanish.

SOUTH CAROLINA STATION, Clemson College, P. H. Mell, Director.

Texas Fever. Part II. Inoculation. By G. E. Nesom. (Bulletin No. 90, pp. 71, figs. 17.)

This is an account of the author's experience extending over a number of years in inoculating against Texas fever, with a brief history of the disease and of the method of treatment and a description of the methods used by the author.

Coast Experiments. Report of Progress. (Bulletin No. 91, pp. 22.)

A brief account of work which has been carried on by a committee on coast experiment work under the supervision of Clemson Agricultural College, and which has included experiments with rice, cotton, and other field crops and forage plants.

Analyses of Commercial Fertilizers. (Bulletin No. 92, pp. 18.)

Results of analyses of 231 samples of fertilizers collected and analyzed during the season of 1903–4 are reported and briefly discussed.

SOUTH DAKOTA STATION, Brookings, J. W. Wilson, Director.

Annual Report, 1904. (Annual Report, 1904, pp. 21.)

A brief account is given of the work and expenditures of the experiment station during the year ended June 30, 1904.

UTAH STATION, Logan, J. A. Widtsoe, Director.

The Relation of Smelter Smoke to Utah Agriculture. By. J A. Widtsoe. (Bulletin No. 88, pp. 147–179.)

A detailed discussion of results of an investigation of injuries caused by smelter smoke in and about the towns of Murray and Bingham Junction, a few miles south of Salt Lake City.

A New Centrifugal Soil Elutriator. By P. A. Yoder. (Bulletin No. 89, pp. 47, figs. 13.)

A description and tests of a centrifugal machine which it is believed largely overcomes the objections to previous methods and which renders it possible "to make a good separation in a comparatively short time, using a relatively small volume of water, and securing at once each grade of particles except the fine clay, in a minimum of water, ready for drying and weighing."

Feeding Beet Molasses and Pulp to Sheep and Steers. By L. A. Merrill and R. W. Clark. (Bulletin No. 90, pp. 51–65.)

A summary is given in this bulletin of experiments at other stations and by practical feeders with beet pulp as a feeding stuff, and experiments during the winter of 1902–3 at the Utah Station with 12 2½-year-old grade Shorthorn steers and 96 average range wether lambs fed rations containing beet pulp or beet molasses are reported.

Memoranda of Plans for Arid Farm Investigations. (Circular No. 1, pp. 63.)

Memoranda of Plans of Irrigation Investigations. (Circular No. 2, pp. 23.)

Fourteenth Annual Report, 1903. (Annual Report, 1903, pp. XLII.)

Summary accounts are given of the operations in the different departments of the station during the year, with a list of publications issued by the station.

VIRGINIA STATION, Blacksburg, A. M. Soule, Director.

Orchard Studies—XVI. The Composition of Apples. By W. B. Alwood and R. J. Davidson. (Bulletin No. 143, pp. 283–299.)

This bulletin gives the results of investigations on the composition of the more important varieties of apples fruiting in the station orchard, including studies of the quantity of juice furnished by each variety and chemical analyses of both juice and pomace.

Hay Substitutes. By D. O. Nourse. (Bulletin No. 148, pp. 83–90.)

Experiments with 14 grade Holstein cows and 14 beef heifers to test the relative feeding value of corn stover, wheat straw, and cotton-seed hulls as substitutes for hay are reported.

Cowpeas and Soy Beans. By D. O. Nourse. (Bulletin No. 149, pp. 95–99.)

Brief notes on a number of varieties of these crops grown in 1902.

WYOMING STATION, Laramie, B. C. Buffum, Director.

Native and Introduced Saltbushes. By E. Nelson. (Bulletin No. 63, pp. 19, figs. 7.)

"This bulletin is a report on various experiments with saltbushes at the experiment farm, three years' tests of Australian and native species, and observations made in the field."

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United States Department of Agriculture,

OFFICE OF EXPERIMENT STATIONS,

A. C. True, Director.

LIST OF STATION PUBLICATIONS RECEIVED BY THE OFFICE OF EXPERIMENT STATIONS DURING NOVEMBER AND DECEMBER, 1904.

Note.—These publications are not distributed by the Department of Agriculture, but can usually be obtained, as far as the supply will permit, by applying to the stations issuing them.

Arizona Station, Tucson, R. H. Forbes, Director.

Cost of Pumping for Irrigation. By S. M. Woodward. (Bulletin No. 49, pp. 457–469.)

This bulletin gives the results of investigations relating to the actual cost of pumping water for irrigation at 9 representative pumping plants now in operation in Arizona.

Arkansas Station, Fayetteville, W. G. Vincenheller, Director.

Broom Corn Suggestions. By C. L. Newman. (Bulletin No. 83, pp. 107–118).

"The object of this bulletin is to supply * * * information to those who are beginners in broom corn growing, that they may avoid some common mistakes and not overlook or neglect some operations necessary to success." It is based upon station experiments and observations among practical growers and gives detailed directions for culture and handling.

Peanuts. By C. L. Newman. (Bulletin No. 84, pp. 119–129.)

Methods of growing and handling peanuts, especially for stock food, are described, the recommendations made being based mainly upon the experience of the station in growing this crop.

California Station, Berkeley, E. W. Hilgard, Director.

California Olive Oil: Its Manufacture. By G. W. Shaw. (Bulletin No. 158, pp. 33, figs. 22.)

A detailed discussion of this subject, embodying data reported in a number of earlier publications of the station.

The Hop Aphis. By W. T. Clarke. (Bulletin No. 160, pp. 13, figs. 7.)

This bulletin describes the hop aphis, especially the spring appearance, as well as the character of its injuries, and reports experiments with various remedies.

Tuberculosis in Fowls. By A. R. Ward. (Bulletin No. 161, pp. 13, figs. 4.)

This bulletin treats of the symptoms, lesions, spread, and control of tuberculosis in fowls, and briefly discusses the relations of the disease to tuberculosis in man and cattle.

Colorado Station, Fort Collins, L. G. Carpenter, Director.

Potato Failures. By F. M. Rolfs. (Bulletin No. 91, pp. 33, figs. 5.)

This is a second report on Rhizoctonia of the potato, which includes especially results of a study of the fruiting stage of this fungus both in the laboratory and in the field and of methods of treatment.

Large Potato Vines and No Potatoes. By W. Paddock. (Bulletin No. 92, pp. 8, figs. 2.)

A condensed account of investigations on potato diseases reported in detail in Bulletins 70 and 91 of the station.

CONNECTICUT STATE STATION, New Haven, E. H. Jenkins, Director.

San José Scale Insect Experiments in 1904. By W. E. Britton and B. H. Walden. (Bulletin No. 146, pp. 32, pls. 4.)

A detailed account is given in this bulletin of spraying experiments in Bridgeport, New Haven, Westville, Wallingford, Southington, and Milford, in which over 4,000 trees were treated, about 800 in December and the remainder in March and April, and 15 different spray formulas, including mixtures of lime and sulphur, were used. The relative efficiency of the different sprays and methods of treatment, as well as the injury by the severe winter of 1901–3 to the trees and to the scale insects, are discussed.

Forestry for Farmers of Connecticut. (Forestry Publication No. 1, pp. 4.)

The importance of forestry from the farmer's standpoint in Connecticut is discussed and an offer of expert advice and assistance by the station in the management of wood lands is made.

Commercial Fertilizers. (Annual Report, 1904, pt. 1, pp. 104+VII.)

This is the usual annual report on inspection of fertilizers in Connecticut, and includes analyses of 508 samples of commercial fertilizers and manurial waste products, with notes on the observance of the fertilizer law, the duties of the station and of manufacturers and dealers under the law, explanations regarding the analysis and valuation of fertilizers, discussions of the quality of the raw materials supplying nitrogen, phosphoric acid, and potash, home mixtures and miscellaneous fertilizers examined by the station during the year, and a review by E. H. Jenkins of the fertilizer market for the year ended September 30, 1904.

CONNECTICUT STORRS STATION, Storrs, L. A. Clinton, Director.

The Food Value of a Pound of Milk Solids. By C. L. Beach. (Bulletin No. 31, pp. 16, figs. 14.)

Two series of experiments with young pigs to test the relative food value of milk solids in milk poor and rich in fat are reported.

Protecting Cows from Flies. By C. L. Beach and A. B. Clark. (Bulletin No. 32, pp. 14, fig. 1.)

A series of tests of a proprietary fly repellant is reported.

HAWAII STATION, Honolulu, J. G. Smith, Special Agent in Charge.

The Banana in Hawaii. By J. E. Higgins. (Bulletin No. 7, pp. 53, pls. 9, figs. 9.)

This bulletin discusses varieties, methods of culture, shipping, diseases, insects and other enemies, and uses of the banana, with some notes on the banana trade and its possible future development.

IDAHO STATION, Moscow, H. T. French, Director.

Experiments in Pig Feeding. By H. T. French. (Bulletin No. 42, pp. 307–318, pls. 9.)

The experiments here reported extended over two years and included trials of wet versus dry feed, slaughter tests of Poland-China and cross-bred Tamworth-Poland-China pigs, and tests of green, black-eyed marrow-fat peas as a pasture for pigs.

Trap Rocks of Palouse Region as Road Material. By C. N. Little. (Bulletin No. 45, pp. 12, pls. 3.)

The results of a series of tests of hardness, toughness, and cementing power of 12 samples of trap rocks of the Palouse region are reported.

ILLINOIS STATION, Urbana, E. Davenport, Director.

The Physical Improvement of Soils. By J. G. Mosier. (Circular No. 82, pp. 21, pls. 4.)

This is a popular summary of useful information relating especially to soil physics and management and the value of organic matter. "It is preliminary to more specific and technical bulletins which are to follow, giving the detailed results of experiments and investigations relating to these subjects."

INDIANA STATION, Lafayette, A. Goss, Director.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. 38.)

This report contains a statement of receipts and disbursements and of the financial needs of the station, and brief summaries of the work of the year in the different departments of the station. It also contains a list of bulletins published by the station up to December 1, 1904, as well as statements regarding station staff, mailing list, donations, etc.

IOWA STATION, Ames, C. F. Curtiss, Director.

Experiments in Beef Production. By W. J. Kennedy et al. (Bulletin No. 79, pp. 266–304.)

This bulletin gives the results of feeding experiments conducted by the station in cooperation with a practical feeder at Odebolt, Iowa, in which the subjects investigated were (1) the relative economy of light, medium, and heavy grain rations in beef production; (2) the value of western and northern steers in comparison with those from the Southern States for feeding purposes under Iowa conditions; and (3) the feeding value of various supplemental feeding stuffs and condimental foods when used in conjunction with corn for beef production, the latter being a continuation of experiments reported in Bulletin 66 of the station.

KANSAS STATION, Manhattan, J. T. Willard, Director.

Experiments with Dairy Cows. By D. H. Otis. (Bulletin No. 125, pp. 59–161, figs. 44.)

The results of experiments on methods and economy of milk production with pure-bred and grade cows, extending over a number of years, are summarized, and the relation of the results to the profitableness of dairying under Kansas conditions is discussed. The importance and methods of using the Babcock milk test are also explained.

MAINE STATION, Orono, C. D. Woods, Director.

Home-mixed Fertilizers. By C. D. Woods. (Bulletin No. 107, pp. 129–152.)

"This bulletin contains the report of cooperative experiments with farmers upon home mixing and suggested formulas for a few of the more common crops."

Brown-tail Moth and Other Orchard Moths. By Edith M. Patch. (Bulletin No. 108, pp. 153–168, pls. 3.)

"This bulletin contains an account of the brown-tail moth, and notes upon a few common orchard caterpillars, together with some insect-eating birds."

MARYLAND STATION, College Park, H. J. Patterson, Director.

Sweet Corn: Breeding, Growing, and Curing for Seed. By A. Stabler. (Bulletin No. 96, pp. 31–34.)

The purpose of this bulletin, which is written by a practical grower, is to place "at the disposal of Maryland farmers the best information obtainable on the present methods of growing sweet corn for seed in Maryland, and the methods in use in the New England States."

The Relative Profits of Selling Milk, Cream, and Butter. By C. F. Doane. (Bulletin No. 97, pp. 45–56.)

This is a report of a study of the condition of the dairy industry of Maryland, including data relating to prices received for different dairy products at different times of the year.

Home-grown Protein as a Substitute for Purchased Feeds and Tests of Soiling Crops. By C. F. Doane. (Bulletin No. 98, pp. 57–83.)

A series of experiments extending over several years is reported, which includes (1) comparison of a ration of alfalfa and corn meal with one of corn silage and mixed grain, (2) alfalfa and silage without grain, (3) cowpea hay and cowpea silage as food for cows, (4) cowpea silage with corn silage, (5) rye soiling with silage, (6) comparative value of rye and wheat as soiling crops, (7) soiling versus pasture, and (8) dry feed versus pasture.

MASSACHUSETTS STATION, Amherst, H. H. Goodell, Director.

The Graft Union. By F. A. Waugh. (Technical Bulletin No. 2, pp. 16, figs. 10.)

This is an account of observations on the nature of the union between stock and scion, especially in hardwood grafting.

Meteorological Observations. By J. E. Ostrander and G. W. Patch. (Meteorological Bulletin No. 190, pp. 4.)

This is a summary for October, 1904.

Meteorological Observations. By J. E. Ostrander and G. W. Patch. (Meteorological Bulletin No. 191, pp. 4.)

This is a summary for November, 1904.

MICHIGAN STATION, Agricultural College, C. D. Smith, Director.

Soil Moisture: Its Importance and Management. By J. A. Jeffery. (Bulletin No. 219, pp. 31–40, figs. 2.)

A general discussion of the subject, including results of tests of the water-holding capacity of clay, loam, sandy, and muck soils.

Dried Beet Pulp and Dried Molasses-beet-pulp for Fattening Sheep. By R. S. Shaw. (Bulletin No. 220, pp. 43–50, pl. 1.)

Experiments are reported which had for their object to determine (1) the feeding value of dried beet pulp as compared with corn, (2) the feeding value of dried beet pulp when used in conjunction with grain rations, and (3) the relative feeding values of dried beet pulp and dried molasses-beet-pulp.

MONTANA STATION, Bozeman, F. B. Linfield, Director.

Creameries and Cheese Factories: Organization, Building, and Equipment. By W. J. Elliott. (Bulletin No. 53, pp. 59–88, figs. 6.)

The advantages of dairying are explained and the adaptability of the industry to Montana conditions is pointed out. Plans and specifications for up-to-date creameries and butter and cheese factories are given, with complete lists of machinery required and forms for organization agreements, etc.

NEW HAMPSHIRE STATION, Durham, W. D. Gibbs, Director.

Experiments in Destroying Black-flies. By C. M. Weed. (Bulletin No. 112, pp. 133–136, pl. 1, figs. 2.)

This bulletin gives a brief account of the life history of black-flies, and describes some successful experiments in ridding a locality of the pests through the destruction of the early stages in their breeding places by means of applications of oil.

Corn Meal, Middlings, and Separator Skim Milk for Fattening Pigs. By E. L. Shaw. (Bulletin No. 113, pp. 139–143.)

An account is here given of experiments begun in December, 1903, to test (1) the feeding value of separator skim milk when fed with corn meal and with middlings, and (2) the feeding value of corn meal and middlings. The experiments were made with 20 Yorkshire pigs, from 12 to 13 weeks old and of uniform size, and extended over 2 periods of 60 days each.

The Babcock Test for New Hampshire Farmers. By I. C. Weld. (Bulletin No. 114, pp. 147–158, figs. 18.)

The importance of the Babcock test in the successful management of the dairy herd is discussed, and detailed directions are given for the operation of the test. The text of the New Hampshire law regarding the use of milk tests is given.

NEW YORK CORNELL STATION, Ithaca, L. H. Bailey, Director.

Record of an Attempt to Increase the Fat in Milk by Means of Liberal Feeding. By H. H. Wing and J. A. Foord. (Bulletin No. 222, pp. 19–39, figs. 11.)

This is a record of experiments extending over four years, in which an attempt was made to increase the percentage of fat in milk by feeding "an abundant ration easily digestible and rather nitrogenous in character" to a herd of cows which had previously been kept under adverse conditions.

The Grape Berry Moth. By M. V. Slingerland. (Bulletin No. 223, pp. 43–60, figs. 14.)

The appearance, life history, habits, distribution, and methods of treatment of *Polychrosis viteana* are discussed in detail.

Two Grape Pests. By M. V. Slingerland and F. Johnson. (Bulletin No. 224, pp. 63–74, figs. 4.)

The results of 3 years' spraying experiments in Chautauqua County against the grape root worm (*Fidia viticida*) are reported, with suggestions as to practical methods of treating this pest. The discovery of a new grape enemy, the grape blossom bud gnat, is also reported, and notes are given on its nature, distribution, destructiveness, life history and habits, and methods of treatment.

NEW YORK STATE STATION, Geneva, W. H. Jordan, Director.

Vitality of the Cabbage Black-rot Germ on Cabbage Seed. By H. A. Harding, F. C. Stewart, and M. J. Prucha. (Bulletin No. 251, pp. 177–194, pl. 1.)

This is an account of a study of the ability of the germs of black rot of cabbage (*Pseudomonas campestris*) to survive the winter on the seed, with suggestions of precautionary measures to be taken to avoid distribution of the disease by means of infected seed.

Twenty-second Annual Report, 1903. (Annual Report, 1903, pp. 477, pls. 35.)

This is a detailed account of the work of the year in the different departments of this station, including the reports of the director and treasurer, a list of periodicals received by the station during 1903, meteorological records, and accounts of special investigations on the following subjects: The importance of mineral matter and the value of grit for chicks, the rôle of the lactic-acid bacteria in the manufacture and in the early stages of ripening of Cheddar cheese, at what temperature should peas be processed? combating black rot of cabbage by the removal of affected leaves, two decays of stored apples, potato spraying experiments in 1903, the relation of carbon dioxid to proteolysis in the Cheddar cheese, rennet enzym as a factor in cheese ripening, experiments in curing cheese at different temperatures, conditions affecting chemical changes in cheese ripening, the status of phosphorus in certain feed materials and animal by-products, thinning apples, spray mixtures and spray machinery, some facts about commercial fertilizers in New York State, and inspection of feeding stuffs.

NORTH CAROLINA STATION, Raleigh, B. W. Kilgore, Director.

Twenty-sixth Annual Report, 1903. (Annual Report, 1903, pp. 156, pl. 1, figs. 76.)

This report includes brief accounts of the operations of the different departments of the station during the year, a statement of receipts and disbursements, reprints of the regular bulletins (Nos. 182–185) and press bulletins issued during the year, and special papers on the following subjects: Nitrification of different fertilizers, studies in nitrification, nitrifying power of typical North Carolina soils, the assimilation of free nitrogen by bacteria, and determination of sulphates in plants.

OHIO STATION, Wooster, C. E. Thorne, Director.

Varieties of Strawberries. By W. J. Green and F. H. Ballou. (Bulletin No. 154, pp. 29–63, figs. 14.)

Descriptions are given in this bulletin of 85 varieties of strawberries which were prominent in tests made by the station in 1904. Selected lists of varieties for different purposes are given.

Silage *v.* Grain for Dairy Cows. By C. G. Williams. (Bulletin No. 155, pp. 65–80, figs. 3.)

This is an account of experiments made during the winter and spring of 1904 "to determine what effect the feeding of more silage than is usually fed by dairymen, with a corresponding reduction in the grain portion of the ration, might have upon the production of milk, butter fat, gain in live weight, cost of the ration, and consequent profit."

OREGON STATION, Corvallis, J. Withycombe, Director.

Sixteenth Annual Report, 1904. (Annual Report, 1904, pp. 24–47.)

Brief accounts are given of the work of the year in the different departments of the station.

RHODE ISLAND STATION, Kingston, H. J. Wheeler, Director.

Commercial Fertilizers. By H. J. Wheeler et al. (Bulletin No. 102, pp. 14.)

Analyses of fertilizers inspected during 1904 are reported.

Seventeenth Annual Report, 1904. (Annual Report, 1904, pp. 161–289 +IX, pls. 8.)

This includes reports of the director, treasurer, and the heads of the different departments of the station, the latter including special articles on the following subjects: Apple maggot, clover selection, corn selection, tent covering for vegetables and strawberries, and magnesium as a manure.

TENNESSEE STATION, Knoxville, ——— ———, Director.

Training and Pruning Fruit Trees and Vines. By C. A. Keffer. (Bulletin Vol. XVII, No. 3, pp. 51–68, figs. 25.)

Different methods of training and pruning are described.

Replacing Grain with Alfalfa in a Ration for Dairy Cows. By A. M. Soule and S. E. Barnes. (Bulletin Vol. XVII, No. 4, pp. 71–92, figs. 7.)

A series of experiments on this subject is reported and the practical applications of the results are discussed.

TEXAS STATION, College Station, J. A. Craig, Director.

Early Cottons. By R. L. Bennett. (Bulletin No. 75, pp. 20, figs. 7.)

The results of one season's experiments by the Texas Experiment Station cooperating with the Bureau of Plant Industry of this Department are reported.

The topics treated are: Sources of seed and varieties for the investigations, structure of the cotton plant in its relation to earliness and productiveness, maturity of bolls on early and late cottons and of bolls on little and big boll cottons, rate of growth, what constitutes an early cotton, varieties, seed selection, imported small-boll short-staple Carolina seed, earliness of northern seed, storm-proof cottons, fertilizing cotton for earliness, and soils of the State.

WASHINGTON STATION, Pullman, E. A. Bryan, Director.

The Raspberry-cane Maggot. By W. H. Lawrence. (Bulletin No. 62, pp. 13, figs. 5.)

A report is here given of observations on the life history and habits, nature and extent of injury, natural enemies, and treatment of this insect as it occurs in Washington.

The Raspberry-root Borer, or the Blackberry-crown Borer. By W. H. Lawrence. (Bulletin No. 63, pp. 15, figs. 4.)

This is a record of observations on identity and appearance, nature and extent of injury, food plants, habits and life history, natural enemies, and methods of treatment of *Bembecia marginata* as it occurs in Washington.

The Apple Scab in Western Washington. By W. H. Lawrence. (Bulletin No. 64, pp. 24, figs. 7.)

This bulletin discusses the life history, summer or parasitic stage and winter or saprophytic stage of *Fusicladium dendriticum*, which is reported to be abundant and destructive in western Washington, and records observations on the susceptibility of different varieties, behavior in different artificial cultures, germination, and methods of treatment, including spraying with fungicides, particularly Bordeaux mixture.

Three Common Insect Pests of Western Washington. By W. H. Lawrence. (Bulletin No. 65, pp. 14.)

This bulletin discusses the life history, habits, general appearance, and treatment, including results of experiments with various insecticides, of oyster-shell bark-louse (*Mytilaspis pomorum*), woolly aphis of the apple (*Schizoneura lanigera*), and pear and cherry slug (*Eriocampoides limacina*).

Blackspot Canker. By W. H. Lawrence. (Bulletin No. 66, pp. 35, pls. 13.)

This bulletin summarizes the available information regarding blackspot canker and reports the results of a field study of the disease during the summer of 1902, including observations on the nature and appearance, distribution, injury, artificial inoculation, and remedies and preventive treatment.

WISCONSIN STATION, Madison, W. A. Henry, Director.

The Quality of Cheese as Affected by Rape and Other Green Forage Plants Fed to Dairy Cows. By U. S. Baer and W. L. Carlyle. (Bulletin No. 115, pp. 16, figs. 2.)

A series of experiments with different breeds of cows to test the effect of rape, green clover, cabbage, and green forage corn on the flavor, color, texture, etc., of cheese, is reported.

Twenty-first Annual Report, 1904. (Annual Report, 1904, pp. X+392, pls. 7, figs. 85.)

This report gives a summary by the director of the work of the station during the year ended June 30, 1904, a financial statement, the text of the State feeding stuffs and fertilizer laws, list of exchanges, etc., and the following special articles: Whole corn compared with corn meal for fattening pigs, eighth year trial; some effects of feeding wide and narrow rations on the growth of young pigs; soy beans *v.* middlings as a supplement to corn meal for fattening pigs; yield and composition of sows' milk; on the daily yield and composition of milk from ewes of various breeds; the value of soy beans as a part of a grain ration

for lambs; exercise *v.* confinement for fattening sheep in winter; effect upon the lambs of feeding a mixed grain ration of corn, oats, and bran to pregnant ewes; soy-bean silage as a food for dairy cows; the university dairy herd, 1903–4; official tests of dairy cows, 1903–4; the effect of different stable temperatures upon the milk yield of dairy cows; causes of variation in the weight of dairy cows; relation of flavor development in cold-cured Cheddar cheese to bacterial life in same; disappearance of bacteria artificially introduced into cows' udder; a graphic method of demonstrating the action of acid-producing bacteria on casein; infectiousness of milk from tuberculous cows; effect of short periods of exposure to heat on tubercle bacilli in milk; studies on the influence of soil on the protein composition of crops; studies of muck and peat soils; preliminary report on cranberry investigations; tobacco investigations—preliminary report; evaporation of water from apple trees during the winters of 1902–3 and 1903–4; forcing beans; sixth annual report of the nursery inspector for the State of Wisconsin; some observations on the Botrytis rot and drop of lettuce; experiments with grain and forage plants, 1904; oat and barley smut investigations; trials with sugar beets, 1904; feeding stuff and fertilizer inspection in Wisconsin, 1904; miscellaneous chemical work; and description of the laboratories of the chemical and bacteriological departments.

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